NexSys® COMPUTER CONTROLLED AUDIO SYSTEMS

VERSION 3.0

Software

Manual

VERSION 3.0

CREST AUDIO

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1. Introduction

Thank you for purchasing NexSys - the powerful computer controlled audio system for your Crest Audio power amplifiers. With its practical and intuitive graphical interface, NexSys has won praise from audio engineers in every discipline. After familiarizing yourself with NexSys, you will realize the value and flexibility that this software package offers.

1.1 What is included in this manual

The NexSys Software Manual is organized into several sections that will provide users with the information necessary to set up and run a NexSys system.

Chapter 2 *Overview.* Presents an introduction to NexSys concepts and a guide to each software section.

Chapters 3 & 4 *Network Topology and Bus Server Installation & Connection.* Presents essential data on your NexSys system components and their interface to the computer and the NexSys RS485 bus.

Chapter 5 *Toolbar & Menus.* Offers quick access to more frequently used NexSys functions.

Chapter 6 *Building a Plan.* Details how to build a plan from user-defined devices, groups, Snapshots, Scenes, and settings.

Chapter 7 *Groups.* Details how to facilitate the control of amplifiers and other devices with NexSys groups.

Chapter 8 *NexSys Faults, Alerts & Events.* Covers the various faults, or alerts, that are reported on screen and to the Event Monitor/Log.

Chapter 9 *Controlling Your Amplifiers.* Details the many ways in which amplifiers may be controlled using NexSys.

Chapter 10 *Snapshots.* Records Plan & Group Snapshots.

Chapter 11 *Scenes.* How to create these graphical “desk top” arrangements, which are collections of NexSys windows that can be opened for viewing or control.

Chapter 12 *Security.* Details how to determine which controls are included in scenes and limit access to those scenes via password protection

Chapter 13 *Event Scheduler.* Profiles one of the most powerful and useful tools in the NexSys system. Event Scheduler allows the system operator to automate all functions that can be executed by a user.

Chapter 14 *MIDI Interface.* Details how NexSys and the Event Scheduler can interact with MIDI equipment via the NexSys MIDI Interface.

Chapter 15 *Load Monitoring.* Profiles this powerful diagnostic tool that provides a consistent means to verify performance of the drive lines and speakers in the system.

Chapter 16 *CK family Sequential Turn-On/Turn-Off (STO).* Details how to sequentially turn on and turn off these amplifiers with a delay between each one.

Chapter 17 *CK family Input Modules & Control Panels.* Covers signal processing controls for NC modules.

Appendix A *Menu Reference.* A complete NexSys menu reference list.

Appendix B *Decimal to Hexadecimal Conversion Table.*

Appendix C *Bus Server Dip Switch Setting Reference Table.*

1.2 What is not included in this manual

A detailed explanation of the system hardware and wiring requirements is not included in this manual, but can be found in the accompanying NexSys System Hardware Manual. A brief resume of hardware addressing and configuration is included in this document in Section 3, Network Topology. Additionally, specific information regarding amplifiers, processor modules, and related peripheral devices can all be found in the various technical data sheets or accompanying operator's manuals.

1.3 System Requirements

We recommend the following minimum computer configuration for NexSys 3.0 systems

- Intel Pentium or compatible computer
- Microsoft Windows 95
- 16 megabytes of RAM
- 10 megabytes of available hard disk space
- Video monitor and driver card capable of displaying a resolution of 1024x768
- Mouse
- High density 3 1/2" (1.44 MB) floppy drive
- *Suggested Option*- Add a modem with a third party remote control software program such as PCAnywhere™ or Carbon Copy™ if you want to control the system from a remote location.

1.4 Manual Conventions

Menu choices appear in the following manner throughout this manual: Plan | Save As...

Holding the ALT key down and pressing the underlined key will invoke that menu choice. For example, ALT + P will drop down the Plan menu. This example also shows that there is a sub-menu or sub-selection for the Plan menu. In this case it is the Save As menu.

Whenever this "information" icon is used,
you will find useful operating hints in italics.

1.5 Software Conventions

NexSys software version 3.0 runs under Microsoft Windows 95™. This manual is written for those who have a working knowledge of Microsoft Windows. For further operating system information, please refer to your Microsoft Windows documentation. (Please note that all graphics used in this manual show NexSys operating under Windows 95.)

When running the NexSys program for the first time, the main window will appear with several pull down menus, a tool bar with controls and display icons. Clicking on a pull down menu item with the left mouse button will bring out the sub-menu items under that partic-

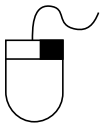
ular function. Valid menu selections are displayed in black while those that are not are grayed out.

When the cursor is placed over an icon on the tool bar, a description of its function is displayed in the border at the very bottom of the NexSys window.

The term active window is used throughout this User's Guide. An active window is the window in which you are currently working. It is the one with the highlighted title bar. Some menu items and toolbar buttons will only be enabled when the correct type of window is the active window.

Use of the Mouse Buttons

Menu selections are made by clicking the menu item with the left mouse button.



Several additional NexSys features are accessed by use of the right mouse button, termed a 'right click'. Whenever this icon is used it indicates the presence of a right-click feature. Right clicking will often show a pop-up menu that is related to the selected object.

1.6 Software Installation

The NexSys software is supplied on standard high density 3.5" floppy disks. To install NexSys, insert the #1application floppy into the drive and select SETUP.EXE. The setup program will prompt you for the location on your hard disk where the files will reside. The default directory offered by the setup program is C:\NEXSYS. If you want to install to a drive or directory other than the default you must type in the target location when prompted. Once the setup program starts it will expand the compressed files on the floppy disk and copy them to the target directory.

It is recommended that you back up the directory after you have loaded the software and configured the system.

1.7 Technical Support

The following contact information will be helpful in obtaining technical service support from Crest Audio for NexSys systems:

Crest Audio Inc.
100 Eisenhower Drive,
Paramus, New Jersey 07652 USA
TEL: (201) 909-8700
FAX: (201) 909-8744
http://www.crestaudio.com

2. Overview

Devices

A ‘device’, as referred to in this manual, is a remote NexSys-compatible piece of electronic hardware that is capable of being controlled and/or of reporting its state. The most common devices connected to the NexSys interface are amplifiers. Other devices that may have an interface with NexSys may include Power Processor NC- input signal processors, NC-Load Monitor and NC- Sequential Power controllers.

A NexSys device has two elements, its name and its network address. The name is an alphanumeric string that you give a device that has some meaning for you. By default, NexSys names devices using simple names and model numbers. You will probably want to rename devices to give cues as to their functions and locations in your system (e.g. Tower 3 Subwoofer.) There is a 40 character limit on device names, although some views will not display all 40 characters.

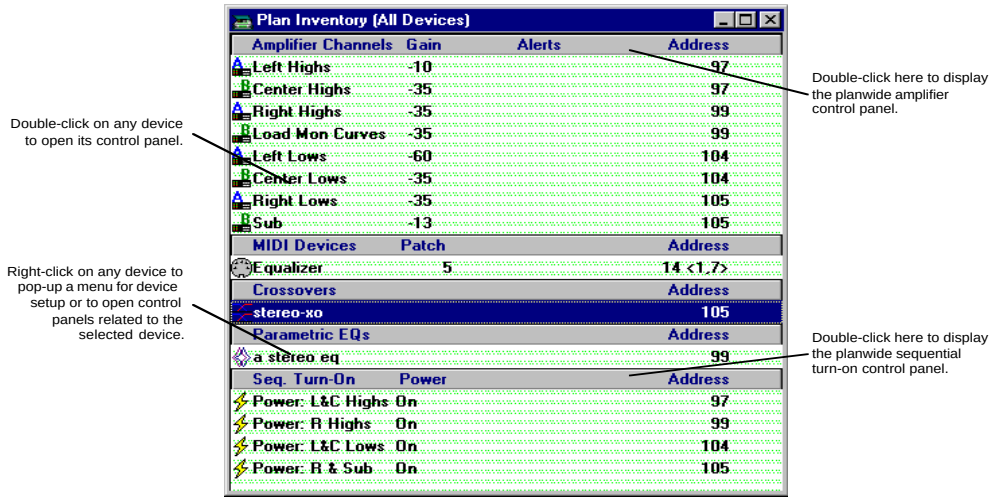
The second device element is its address. The address is a combination of the device’s network address and channel number (if applicable.) For instance, if a CKS400 amplifier is at network address 8 it would appear as two NexSys devices; one for each channel.

Devices are created by choosing Device | New or by using AutoPlan. Once created they will appear within the Plan Inventory window where they are categorized by device type.

Plans

A Plan is to NexSys what a document file is to your word processor. The Plan contains all the information that is unique to the system. It is made up of user-defined devices, groups, snapshots, scenes, and program-defined elements such as the Plan Inventory and Event Monitor. A Plan is saved as a subdirectory of your main NexSys directory (default C:\NEXSYS) and is made up of multiple files. Only one Plan can be loaded and used by NexSys at a time.

The Plan Inventory is the total collection of all devices that have been added to this plan. The plan inventory serves as a good repository from which to copy devices when creating logically-organized groups.


Plan Inventory (All Devices)
Amplifier Channels Gain Alerts Address
A Left Highs -10 97
B Center Highs -35 97
A Right Highs -35 99
B Load Mon Curves -35 99
A Left Lows -60 104
B Center Lows -35 104
A Right Lows -35 105
B Sub -13 105
MIDI Devices Patch Address
Equalizer 5 14 <1.7>
Crossovers Address
stereo xo 105
Parametric EQs Address
a stereo eq 99
Seq. Turn-On Power Address
Power: L&C Highs On 97
Power: R Highs On 99
Power: L&C Lows On 104
Power: R & Sub On 105
Double-click on any device to open its control panel.
Right-click on any device to pop-up a menu for device setup or to open control panels related to the selected device.
Double-click here to display the planwide amplifier control panel.
Double-click here to display the planwide sequential turn-on control panel.

Plan Inventory Window

Groups

A group is a collection of devices placed together for the purpose of common control or monitoring. You can create a group by selecting Group | New from the menu. Any device that can be controlled by NexSys can be added to a group. A single device may be added to more than one group.

Groups exist to customize a Plan according to your specific needs. They serve as a tool to logically organize your Plan. For example, you may create a group that contains all amplifier channels for the low frequency drivers. You may also have a group for the stage left. There is no practical limit to the number of groups you can create.

All of the amplifiers within a group may be controlled by the group control panel. Different group views provide console-like control arrangements for the channels in a group.

Snapshots - Plan & Group

Snapshots are a way to save NexSys control settings for later recall. A device's current setting, such as gain, is "snapshotted" and saved under a user-defined name for instant recall at a later time. Snapshots cover two levels, Plan and group. You can open the snapshot windows by selecting Plan | Snapshot | Open or Group | Snapshot | Open.

Scenes

A scene is a way of saving/recalling different desktops (arrangements of windows) within NexSys. One scene may contain the amplifier control windows for the lower level of a stadium while the controls for the upper level could be saved in a different scene. Another may just contain the snapshot window as a means for simply controlling a complex sound system. Scenes can be saved via the scene maintenance window. This window is accessed by the Scene button on the tool bar or from the DeskTop | Scene menu.

Event Monitor

The Event Monitor tracks system wide faults and activity and generates the Event Log. An Event Log shows the "what and when" of events which occur while NexSys is running. The Event Monitor can be viewed by selecting Options | Event Monitor. The Event Log can also be saved to a file on the host computers hard disk. Once the Event Log is activated, all critical system operation information, including date and time of the event is recorded to a text file. You may give the Event Log a unique name to keep its data separate from other logs.

Software Security

The security features of the NexSys program allow three levels of security access with varying privileges for each level. This feature allows the system administrator to tailor who will have access to various control functions within the software. The Security Administrator window can be opened by selecting Options | Security from the menu.

Event Scheduler

The Event Scheduler is a second software application supplied as a companion program to NexSys. Event Scheduler allows almost limitless automated control of all NexSys functions. You can open or switch to the Event Scheduler by selecting Plan | Event Scheduler from the menu. When NexSys and the Event Scheduler appear as the top two items in the task list, you can switch between these two programs by pressing ALT + TAB.

You can program the Event Scheduler to initiate tasks at a given time (computer clock) or when some other event (such as a switch closure or a fault) takes place. A scheduled event consists of four parameters:

- the event trigger
- the task or action to take place, i.e. what to do
- the target of the action, i.e. which device or devices to perform the action to
- number of times to repeat action & at what frequency (just once, hourly, daily...)

Load Monitoring

Systems configured with optional Load Monitoring hardware allows NexSys to perform diagnostic impedance versus frequency testing of the load on each amplifier channel.

Audio Return

In systems where Load Monitoring hardware is installed, NexSys provides a line level Audio Return port so that program material may be bussed to the remote control position for audible monitoring.

MIDI Interfaces

MIDI-compliant third party devices (such as EQ's, delays, etc.) may be controlled from within NexSys via the optional MIDI Interface unit. NexSys can send (and receive) MIDI patch changes from its control panel or as part of a snapshot.

3. Network Topology

3.1 Amplifier Classes

NexSys hardware is broken into two general groups: components for the CKS, CKV and CKX Series amplifiers or the “CK family amplifiers” and Professional, FCV, CC & CV Series amplifiers or the “Pro class amplifiers”.

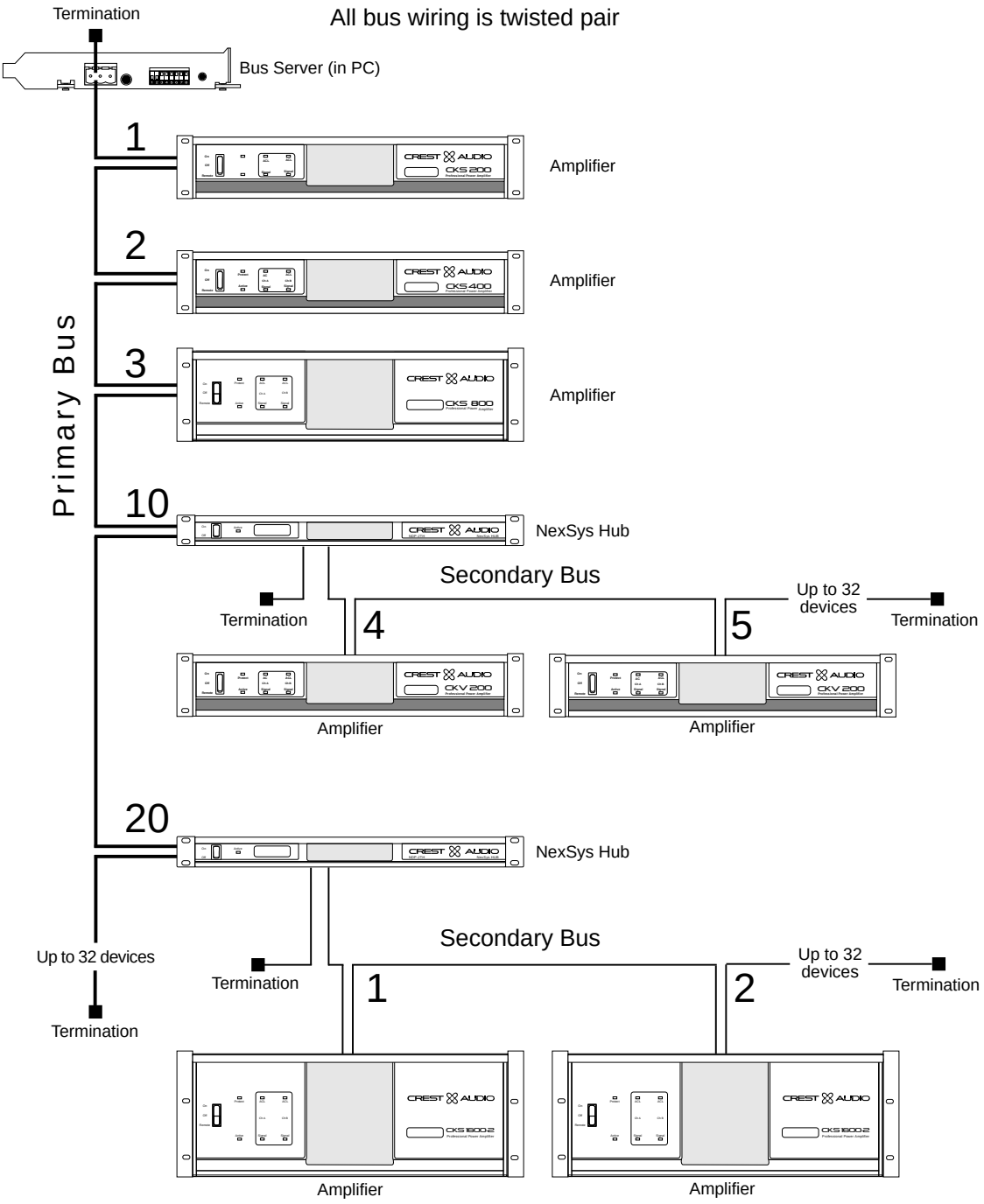
CK family amplifiers utilize a unique modular approach whereby both NexSys network and Load Monitoring modules are installed in the amplifier itself. In addition, a variety of input signal (analog and digital) processing modules are available to expand NexSys as a signal processing system.

Pro class amplifiers are connected to the bus via a Supervisor main frame and daughter cards; Load Monitoring also takes place via an outboard main frame and daughter card unit. NexSys controllable signal processing modules are not available with this class.

3.2 Networks, Nodes and Buses

The NexSys network is EIA485 compliant. Each Device on the network is termed a node. Nodes on a NexSys network include: NC-NXS modules installed in CKS, CKV and CKX amplifiers, Hubs (NDP-JTH), MIDI Interfaces, Supervisor and Load Monitor Mainframes (for Professional, CC/CV & FCV Series amplifiers), and the Bus Server itself.

As with any network, each node must have a unique address. Valid addresses range from 1 to 111, inclusive. In the figure on the next page, an address for each node is shown outside and next to the Device. For instance, the CKS 800 amplifier is at address 0,3.



A NexSys Network with CK family amplifiers and hubs

While a node itself can only be set with a single address, NexSys may report its address with multiple levels or tiers. This is because multiple NexSys networks may be interconnected using NexSys hubs or because data-concentrating devices (such as Supervisors) may reside on the network.

Loosely defined, a bus represents a group of nodes connected together via twisted pair cable, with a terminating resistor at each end. that are not separated by a hub. The group of all busses that are interconnected via hubs is referred to as the network.

A network may be made up of one or more busses. The bus connected to the Bus Server is defined as the primary bus. All other busses in the network are referred to as secondary busses and must be attached to the primary bus through a hub or data concentrator.

All nodes on the primary bus will have single-tiered addresses as follows:

Device	Address
CKS 200	1
CKS 400	2
CKS 800	3
Hub (1st)	10
Hub (2nd)	20

Hubs

A network cannot support more than 32 nodes. Hubs must be used for networks larger than 32 nodes or where odd physical network runs are required. A hub has two bus connections, one for the primary side and one for the secondary side. The bus on the secondary side of the Hub (its secondary network) is electrically isolated from the primary bus but is still a part of NexSys' overall network.

Hubs expand the maximum number of nodes in a system from 32 to 1024. The number of unique addresses is also expanded.

Nodes on a hub's secondary side will have a "two part" address. The first address is the hub's primary address (i.e. the address of the hub on the primary bus.) The second address is the address of the node on the secondary bus. In the figure, the first hub (at primary address 10) has two CKV amplifiers attached to its secondary bus. Their addresses are:

Device	Address
CKV 200	10,4
CKV 400	10,5

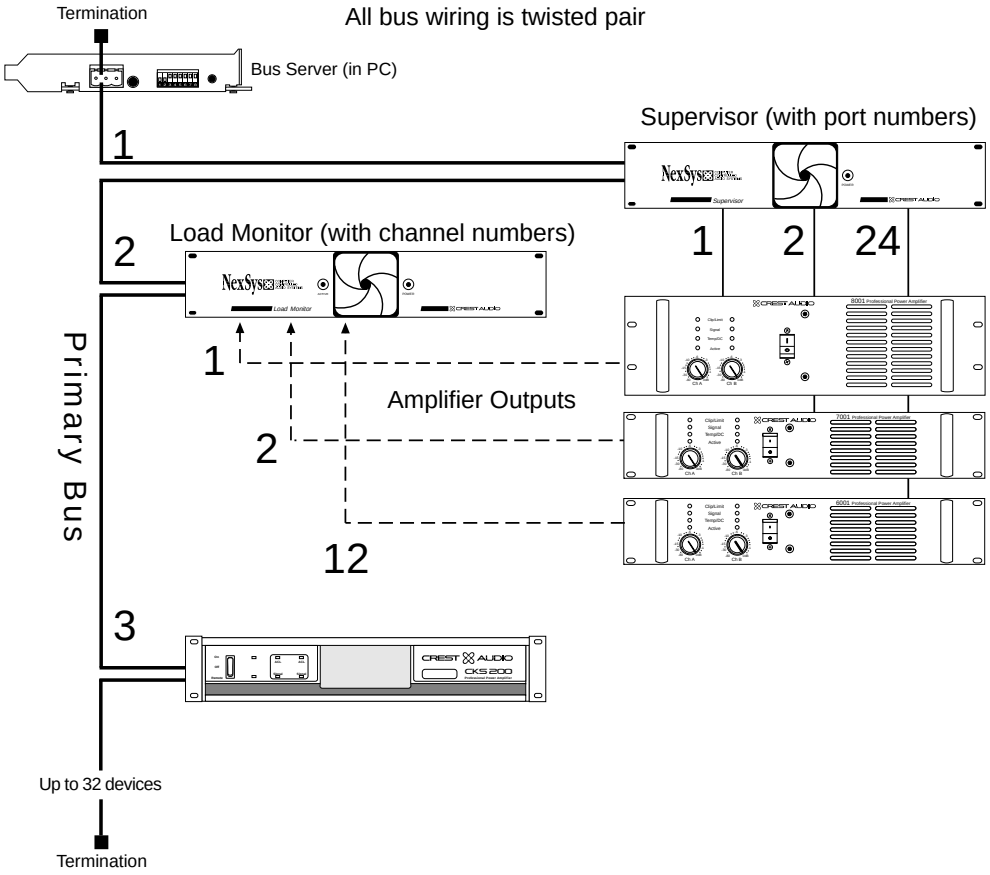
Similarly, the second hub (at primary address 20) has two CKS amplifiers attached to it:

Device	Address
CKS 1600	20,1
CKS 1200	20,2

Notice that amplifiers "CKS 1600" and "CKS 1200" on the second hub's bus have the same addresses (1 and 2) as the CKS 200 and CKS 400 on the primary bus. This is acceptable because the inclusion of a unique primary address differentiates them in the network .

Supervisors (Pro class only)

A Pro class network must have at least one Supervisor. Although the two classes of amplifiers may be combined on a single network, it is helpful to separate them for illustration purposes. Each amplifier has a two part address. The first being the node address of its Supervisor main frame and the second being the amplifier number or Supervisor port number. There are two Supervisor ports per Supervisor daughter card. There is a one to one connection between each Supervisor port and amplifier.



Pro class network setup diagram

The diagram above shows one Supervisor mainframe with three Professional Series amplifiers connected, one Load Monitor mainframe, and one CKS amplifier.

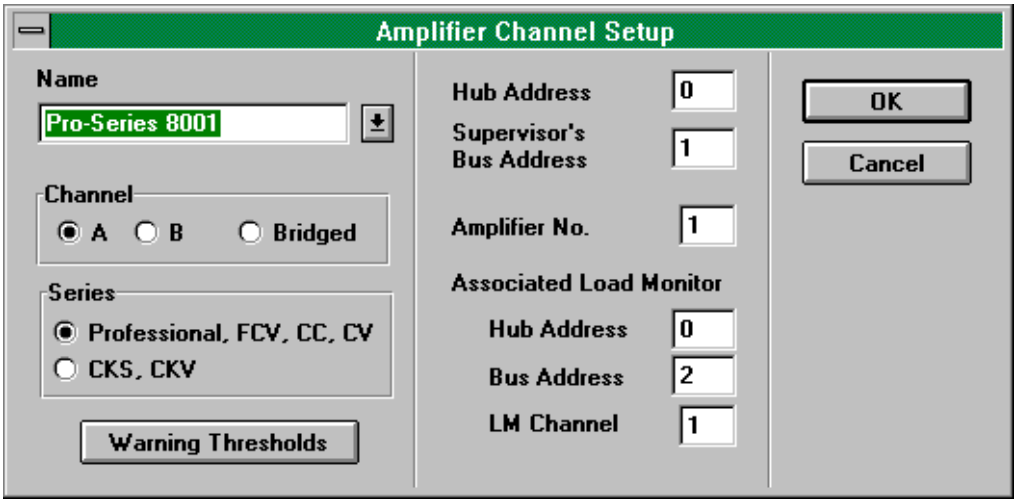
Each Supervisor main frame can accept up to 24 dual channel amplifiers. An amplifier attached to a Supervisor uses the Supervisor's address (primary) and its Supervisor port number to specify its secondary address. NexSys would report addresses for the Devices in this figure as follows:

Device	Address
8001	1,1
7001	1,2
6001	1,24

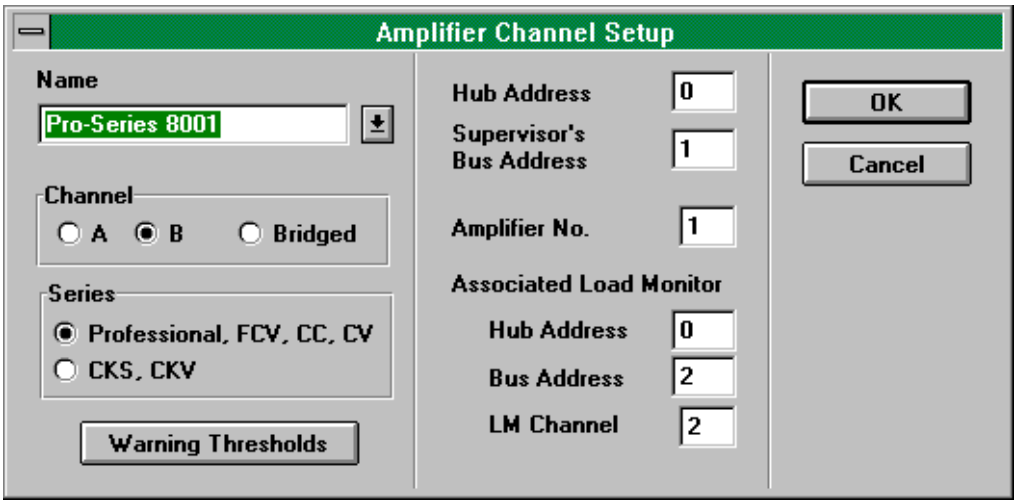
The only time a Supervisor will appear in the software is when the system is being polled during AutoPlan. NexSys does not need to identify the Supervisor as such; its presence is indicated inherently by the amplifiers attached to it -- you can't "control" or monitor a Supervisor, you can control and monitor the amplifiers.

Load Monitor Mainframe (Pro Class only)

The Load Monitor is similar to a Supervisor in its transparent nature to the software. You specify that an amplifier's outputs are connected to the channels of a Load Monitor in the amplifier setup dialog. The setup dialogue for the amp labeled "Pro Series 8001" would look like this for channel A:



... and this set up information for channel B:



Amplifier Channel Setup Windows

Note that the Load Monitor must reside on the same network as the Supervisor. That is, it cannot be separated by a hub.

3.3 Network Terminations & Bus Wire Type

In order to minimize data reflections, the network domain must be properly terminated at extreme ends. Terminating a network is accomplished by placing a resistor (chosen to match the characteristic impedance of the cable) across the twisted pair.

Crest Audio recommends using Belden 8442 unshielded twisted pair cable with 110Ω terminating resistors. Other cable may be used; however, the maximum transmission distance may decrease due to increased distributed capacitance of the cable. Use of other cable may also require different terminating resistors. Mixing different cable types on the same network or the use of star topologies within the same network must be avoided due to the impedance mismatch between cables. All cables must have a characteristic impedance of 100Ω at 100kHz.

All bus connections are opto-isolated, thus eliminating any ground loops and to minimize RF interference.

3.4 Network Addressing

Hardware address settings are determined in two ways (depending on the amplifier class.)

In Pro class amplifiers, the network address is given by its Supervisor's address. A Supervisor is a unique network node whose address is set via DIP switches on the rear panel. This is the primary address. The rear of the Supervisor holds up to 12 daughter cards – each with 2 ports for a total of 24 ports. An amplifier's secondary address is given by the port number to which it is connected. The maximum number of amplifiers that can be connected to a network is 744 (31 Supervisors, each with 24 amplifiers.)

Pro class Load Monitor Mainframe's network addresses are set in the same manner as Supervisors. Load Monitors can hold up to 12 daughter cards which can accommodate 2 amplifier channels for a total of 24 amplifier channels.

CK family Power Processing amplifiers are connected directly to the network – there is no need for Supervisors and Load Monitors. Each address is set via a hexadecimal* rotary selector on the back of the NexSys network module (NC-NXS.) A network can accommodate 31 CK family amplifiers before a hub is needed. For systems with more than 31 nodes, a NexSys Hub is needed. The secondary network of the hub can accommodate 31 more nodes. So the largest CK class system would contain 961 amplifiers. Load Monitoring and other processing functions in the CK family amplifiers use the same address as the amplifier.

** NexSys displays most addresses in decimal (Base 10). You must address the CK family amplifiers using the hexadecimal spinwheels. A hex-to-decimal table is provided in Appendix A.*

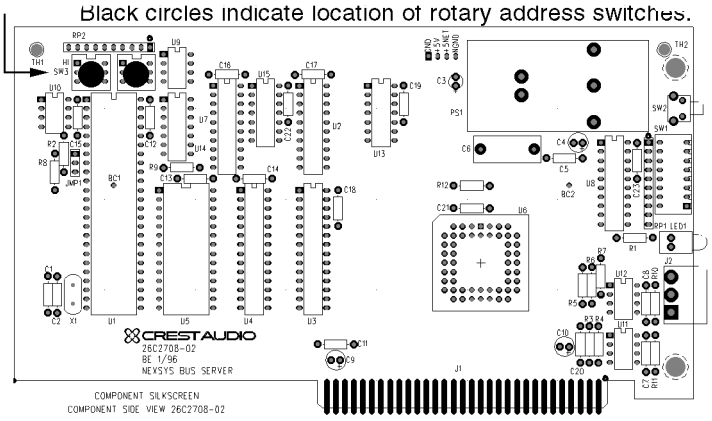
When NexSys displays or requires a number to be entered in hexadecimal (Base 16), an 'H' will appear next to the number. The bus server address in the options bus server window is a prime example.

4. Bus Server Installation and Connection

4.1 Installing the Bus Server Card

The Bus Server Card (NS-BUS-1) is an 8-bit ISA expansion card which requires installation in a vacant slot inside the NexSys host computer. If you are unsure how to insert an ISA card Device inside your computer, please consult a qualified computer technician for assistance. Otherwise, follow these instructions to ensure a safe and speedy installation.

1. *Make sure your computer is switched off and disconnected from the electrical mains.* Be sure to use an anti-static mat or other device to reduce the risk of component failure due to static discharge.
2. *Open the computer case & locate a vacant ISA card slot.*
3. *Remove the mating Phoenix connector from the Bus Server card.* The card was configured and tested prior to leaving the factory. However, shipping and handling may have caused the rotary address switches to shift so verify that they are set to F (HI) and 0 (LOW).



Bus Server Card rotary switch locations

Carefully insert the Bus Server card into the slot ensuring that the edge connector is properly seated and that the Phoenix connector clears the computers rear panel.

4. *Reinstall the outer casing.*
5. *Affix the NexSys network wire into the mating Phoenix connector and insert it into the Bus Server card.* (See the section Connecting the Bus Server to the NexSys Bus, below.)
6. *Reconnect the AC mains*

Connecting the Bus Server to the NexSys Bus

A 3-pin, 5mm removable terminal block (Phoenix Contact 17.5.4.46.5 or equivalent) connector is located on the back of the Bus Server card for connection to the data network. Only the positive (pin1) and negative (pin2) pins of the connector are used. The third, ground pin is normally left open. *(See Appendix C for a detailed view of Bus Server connections)*

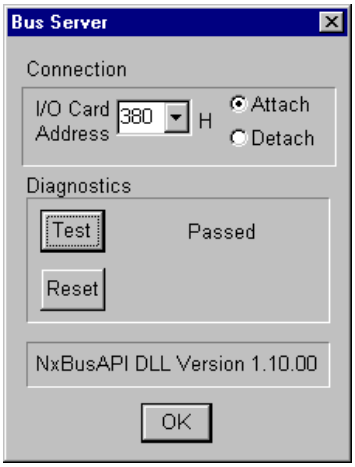
Network polarity must be observed when connecting the Bus Server or any other network device to a NexSys network. If reversed, the network will not operate and NexSys will not be able to communicate with any network devices.

4.2 Communicating with the Bus Server

The Bus Server resides at an I/O address range in your PC. Its base address (the beginning address of the range) is referred to as the Bus Server's I/O address, or I/O address for short. This address is set using the DIP switches positioned on the Bus Server's mounting bracket (at the back of the PC). The default address used for Bus Server testing at the factory is 380 Hex. In some instances this address may be in partial or total conflict with other cards that are installed in the host computer. For example, Ethernet network and sound cards all have I/O addresses that may use the same address (in entirety) or may partially over lap. In these instances the base I/O address must be moved to a vacant address. Some common free I/O locations and the corresponding DIP switch settings for the Bus Server card are listed in the Dip Switch Settings (Appendix C) at the end of this manual.

Changing the Bus Server's I/O Address

The Bus Server's I/O address as given by its DIP switches and its setting within the NexSys software must agree. Changing the I/O address involves the following steps.



Bus Server Dialog Window

1. *Set the Bus Server DIP switches to the desired address.*
   (See Appendix C for dip switch settings)
2. *Press the Reset button on the Bus Server mounting bracket in order for the new address to take effect.*
3. *NexSys must be informed of the address change* -- open the Bus Server dialog (see the figure at left) by selecting Options | Bus Server from the menu.
4. *Select or type in the new address in the I/O Address field.*
5. *Press the Test button* (see note below)
6. *If the tests pass, NexSys can successfully communicate with the Bus Server card.* Select "Attach" so that devices within NexSys can communicate.
7. *If the test fails, you need to select a new I/O address at the Bus Server's DIP switches and repeat the entire process.* (Rebooting the computer may also be required in some instances.)

A note on the Bus Server diagnostics...

Pressing the Test button starts one of two tests. The first, the signature test, simply "looks" to see if the Bus Server card is present. If it is, NexSys prompts you with a second, more extensive test. The second is a test of the full I/O range the Bus Server will use. Warning: of necessity "Test Full I/O" is extensive and, if conflicts are found, it could crash your computer. Save your work prior to conducting the full range test.

Once you've established a connection with the Bus Server, save the plan so that the new setting will be in effect next time.

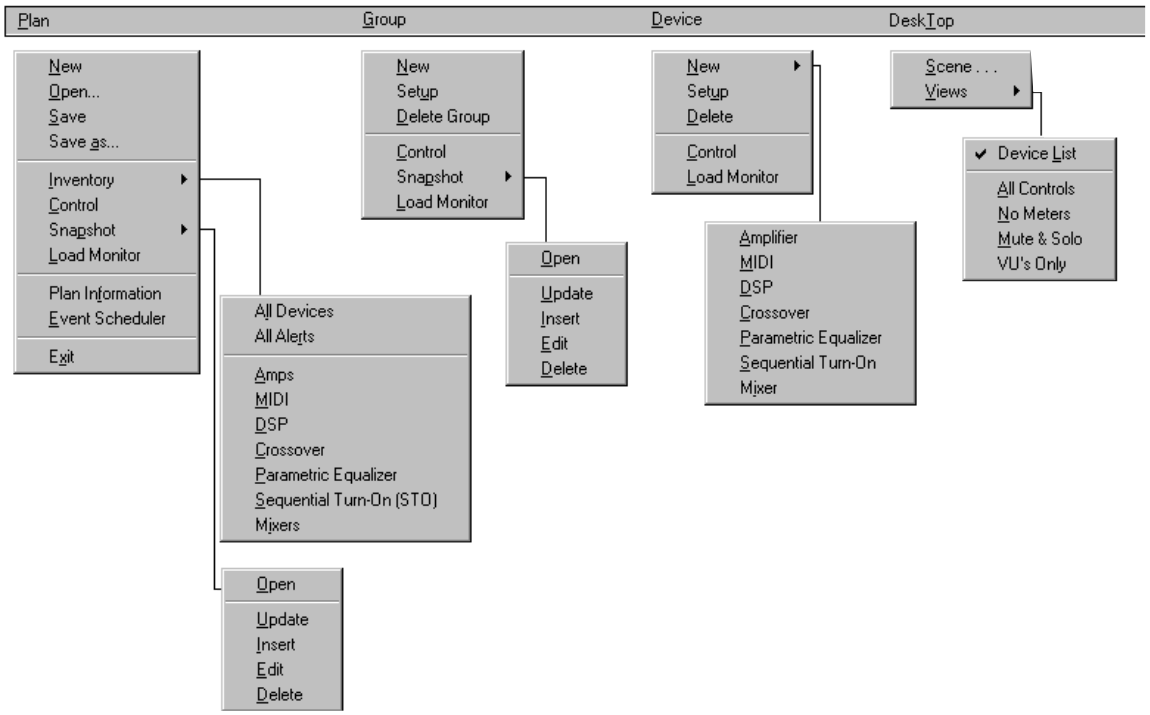
5. The Toolbar & Menus

5.1 Toolbar

The toolbar offers quick access to more frequently used NexSys functions. The diagram above identifies each functional grouping within the toolbar.

- *Scene Selector* - a drop down selection box to quickly load a new scene (i.e. desktop).
- *Scene Maintenance* - brings up the Scene Maintenance dialog. You can create and delete scenes in this dialog.
- *Plan Snapshot Control* - snapshot control for plan-wide snapshots.
- *Plan-wide Amplifier Control Panel*
- *Group Selector* - allows you to quickly open a group that is in the plan but not on the screen.
- *Group Views* - a group must be the active window (a window with a highlighted title bar) in order for these buttons to be enabled. Once they are enabled, these buttons will display the group as a list of devices (list view) or one of the various console views.
- *Plan Inventory Selections* - buttons that will open one of the plan inventory windows.

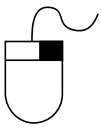
5.2 Menus



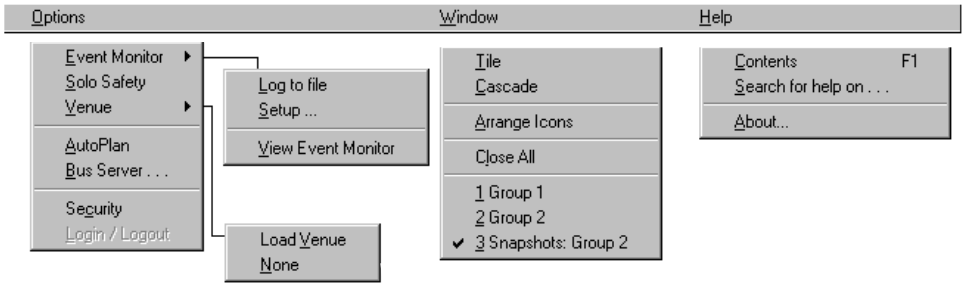
NexSys 3.0 menu hierarchy.

Complete listing (with a brief description) of all menu commands is located in Appendix B.

5.3 Right Mouse Menus



In many places throughout NexSys, right clicking on an object displays a pop-up menu relating to that object. Look for this icon (shown at left) throughout this manual to indicate that a right mouse selection is available.


Options
Window
Help
Event Monitor
Solo Safety
Venue
AutoPlan
Bus Server . . .
Security
Login / Logout
Log to file
Setup ...
View Event Monitor
Load Venue
None
Tile
Cascade
Arrange Icons
Close All
1 Group 1
2 Group 2
3 Snapshots: Group 2
Contents F1
Search for help on . . .
About...

6. Building a Plan

A NexSys Plan is made up of user-defined devices, groups, snapshots, scenes, and settings. The Plan is stored on disk as a collection of data files organized in a subdirectory of the NexSys program directory. Plan files have a default extension of "*.nx". Plan files themselves are normally stored in the root NexSys directory which defaults to C:\NEXSYS.

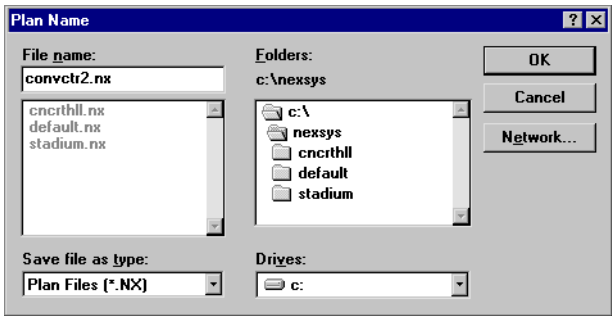
Before proceeding, ensure you have a valid network connection. Refer to Section 4.2 on Communicating with the Bus Server. Of course, if you're not connected to a system you may still build a plan, you just won't have any communication with the devices you create.

6.1 Making a New Plan

Create a new Plan by selecting Plan | New from the menu. The Plan Name dialog will appear (see figure below) prompting you to name the Plan and select its location. Enter the new name for the Plan file (CONVCTR2.NX is used for examples in this manual) and press OK.

A note about directories and plans:

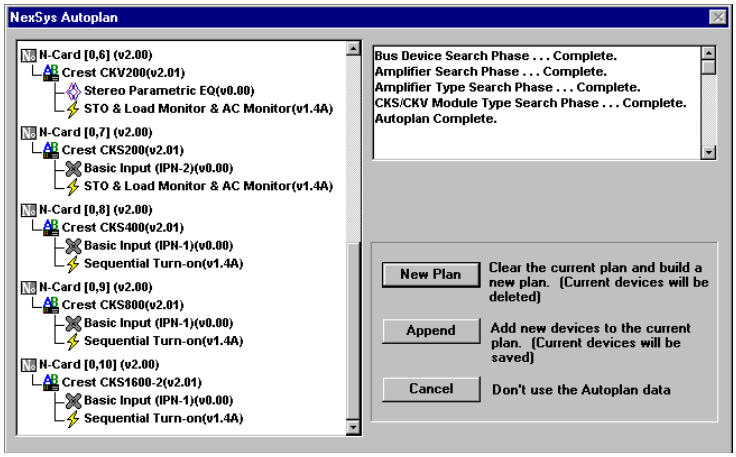
Most times you will simply save the Plan files (*.nx) to the NexSys root directory (C:\NEXSYS). Or- you could elect to save it to a different drive or directory. In either case, the Plan file will be saved to the specified directory and a subdirectory will automatically be created with the same name as the Plan. The subdirectory is where NexSys will store the various data files that are specific for that Plan.



Plan Name Window

6.2 AutoPlan

If you're starting with a new system (all hardware connected), using AutoPlan is the easiest method to build a Plan. AutoPlan polls the network and creates a list of every device it finds. If you are adding devices to an existing Plan the AutoPlan Append feature will add the 'newly found' devices to the existing device Inventory. From here it is a simple task to drag and drop the new devices into any logical groups you create (see Chapter 7, groups.) Start AutoPlan by selecting Option | AutoPlan from the menu.


NexSys Autoplan
N-Card [0,6] (v2.00)
Crest CKV200(v2.01)
Stereo Parametric EQ(v0.00)
STO & Load Monitor & AC Monitor(v1.4A)
N-Card [0,7] (v2.00)
Crest CKS200(v2.01)
Basic Input (IPN-2)(v0.00)
STO & Load Monitor & AC Monitor(v1.4A)
N-Card [0,8] (v2.00)
Crest CKS400(v2.01)
Basic Input (IPN-1)(v0.00)
Sequential Turn-on(v1.4A)
N-Card [0,9] (v2.00)
Crest CKS800(v2.01)
Basic Input (IPN-1)(v0.00)
Sequential Turn-on(v1.4A)
N-Card [0,10] (v2.00)
Crest CKS1600-2(v2.01)
Basic Input (IPN-1)(v0.00)
Sequential Turn-on(v1.4A)
Bus Device Search Phase . . . Complete.
Amplifier Search Phase . . . Complete.
Amplifier Type Search Phase . . . Complete.
CKS/CKV Module Type Search Phase . . . Complete.
Autoplan Complete.
New Plan
Clear the current plan and build a new plan. (Current devices will be deleted)
Append
Add new devices to the current plan. (Current devices will be saved)
Cancel
Don't use the Autoplan data

There are two principal components to the AutoPlan window: a list of the network nodes and devices AutoPlan finds is on the left and a progress report showing the current state of the search phase is on the right. Each network address that is found to have an active device present is listed. Most times the device will be an amplifier. Any other devices, such as signal processors sharing the same address are shown as well.

NexSys Autoplan Window

When AutoPlan finishes searching for devices you will have three choices:

- *Append* - AutoPlan will add the devices it found to the Plan Inventory if they aren't in the inventory. Devices added by AutoPlan are named by their model type.
- *New Plan* - Create a new plan based upon AutoPlan's findings.
- *Cancel* - No changes to the plan will take place.

AutoPlan can also be a useful system troubleshooting tool. This is because AutoPlan searches for devices in phases, namely:

Bus device Search Phase -	Searches for devices directly connected to the network, including: the Bus Server, NC-NXS modules, Hubs, Supervisors, Load Monitors and MIDI Interfaces.
Amplifier Search Phase -	Searches for amplifiers containing the NC-NXS module in the case of CK family amplifiers and those connected to Supervisors for NexSys Pro.
Amplifier Type Search Phase -	Identifies the amplifier model.
CK Module Type Search Phase -	Shows the type of input/output modules contained in a CK family amplifier.

Troubleshooting an inoperative network follows these phases. If NexSys can't find the Bus Server, it surely won't be able to find any amplifiers attached to the network. Similarly, if a Supervisor does not report during AutoPlan, any amplifiers connected to it will not be found.

6.3 Manually Adding devices

Devices can be manually added to a plan at any time by selecting device | New from the menu and then selecting the type of device you would like to create. A setup dialog will appear in which you can enter the name, address and any other device-specific data.

To manually add an amplifier channel to the plan:

1. *Open the Plan Inventory window or the group to which you want to add the*

amplifier.

2. *Make sure the Plan Inventory window (or the group window) is the active window.* An active window is the one with the highlighted title bar.
3. *Select* Device | New | Amplifier *from the menu*.
4. *Fill in the Setup dialog (see section on device Setup) and select OK.*
5. *The amplifier channel you created should now appear in the Plan Inventory* (and the group window, if that was the active window)

Although a somewhat more labor intensive process than AutoPlan, adding devices manually can prove useful in some situations. One situation is where the equipment has yet to be installed. Under these circumstances, you are still able to manually build a plan with no hardware connected. The plan can be as detailed as desired, complete with logically named devices, organized groups, control settings, and even snapshots. When complete save the plan to disk and copy it to the system's PC.

6.4 Saving The Plan

As with any computer program, save your work often especially when making extensive changes. To save your plan, just choose Plan | Save from the menu.

To save a plan under a different name (or to create a copy of the current one,) choose Plan | Save As.

6.5 Plan Inventory

The Plan Inventory shows all of the devices that are part of the plan, including any device added manually or by AutoPlan. The Plan Inventory categorizes devices by type. Within a category, devices are sorted by their bus address.

You can open the Plan Inventory window by selecting Plan | Device Inventory or by pressing one of the Plan Inventory toolbar buttons. The basic plan inventory window shows all devices in the plan. Limited views of specific types are also available.

All devices - Shows the entire plan inventory.

Amplifier Inventory

MIDI device Inventory

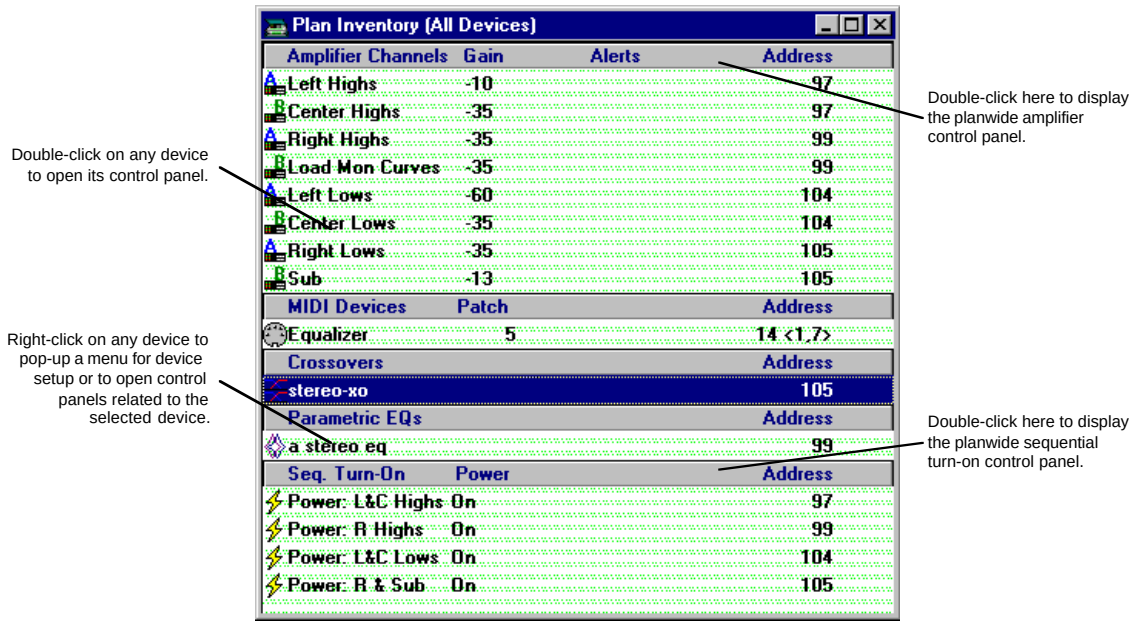
Sequential Turn-On Module Inventory

DSP Module Inventory

Crossover Module Inventory

Equalizer Module Inventory

List of all devices that are experiencing a fault.

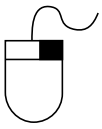

Plan Inventory (All Devices)
Amplifier Channels Gain Alerts Address
Left Highs -10 97
Center Highs -35 97
Right Highs -35 99
Load Mon Curves -35 99
Left Lows -60 104
Center Lows -35 104
Right Lows -35 105
Sub -13 105
MIDI Devices Patch Address
Equalizer 5 14 <1,7>
Crossovers Address
stereo-xo 105
Parametric EQs Address
a stereo eq 99
Seq. Turn-On Power Address
Power: L&C Highs On 97
Power: R Highs On 99
Power: L&C Lows On 104
Power: R & Sub On 105
Double-click on any device to open its control panel.
Right-click on any device to pop-up a menu for device setup or to open control panels related to the selected device.
Double-click here to display the planwide amplifier control panel.
Double-click here to display the planwide sequential turn-on control panel.

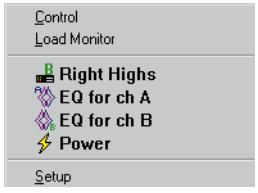
Plan Inventory Window

The plan inventory serves as a good repository from which to drag and drop devices to logically-organized groups. It is also a convenient place from which to set up each device in the system.

6.6 Device Setup

A device may be configured by opening its setup dialog. This task can be accomplished in one of three ways:

- In the process of creating a new device, *Device Setup is automatically called.*
- After having selected a device in the Plan Inventory or a group, *select* Device | Setup *from the menu.*
-  *Right click on a selected device and select* Device Setup from the pop-up menu (below).



Device Setup Menu

A Cancel button appears on all Device Setup dialogs. Pressing it discards all setup changes made to the device. Two parameters are common to all devices: the name of the device and its address. These items are covered first. More specialized setups are then covered on a device by device basis.

Changing the Device's Name

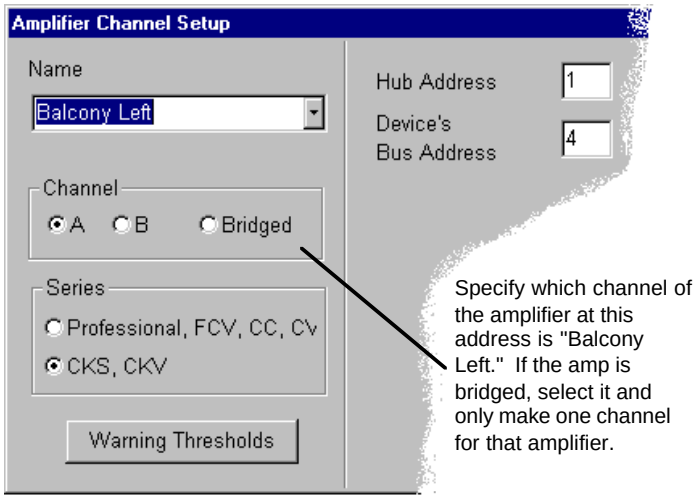
You can enter a device's name by typing in the Name combo-box. By pressing the down arrow in the combo-box, you can choose a name from among the last few entered. This is especially useful for repetitive names where perhaps only a single character is different.

Changing the Device's Address

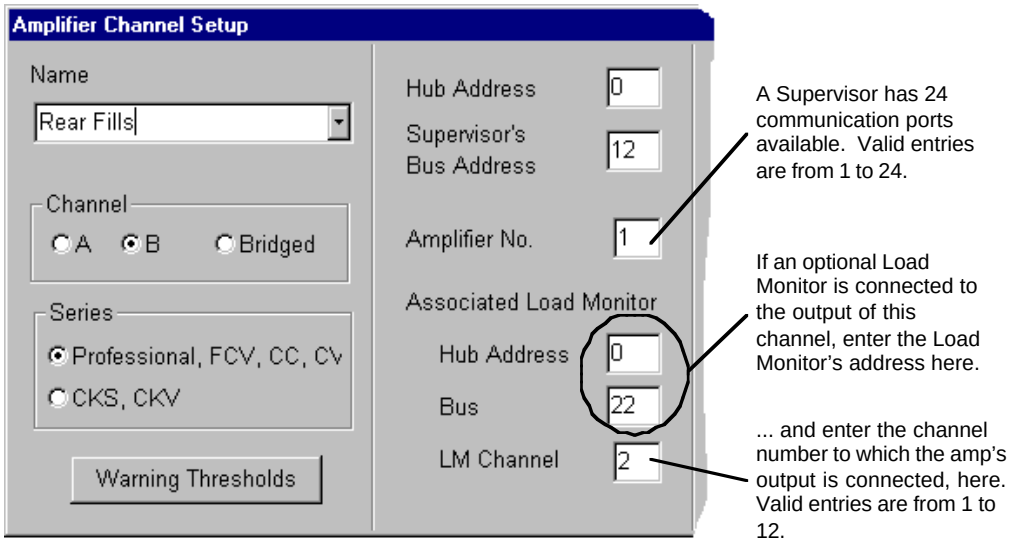
A device address is based upon the device's network node address. An address may be single- or two-tiered depending on its connection. Devices connected to a Hub or Supervisor will always be two-tiered. Devices connected directly to the primary bus will be single-tiered. A discussion of Networks, Nodes and Buses (Section 3.2) has been presented and is worth reviewing if you're not familiar with these concepts.

The highest acceptable node address is 111 decimal (see Appendix A for a decimal-hexadecimal conversion table). This applies to all network devices; including Hubs, Supervisors, Load Monitors, MIDI Interfaces, and CK family amplifiers.

The lowest valid node address is 1 for all network devices. Note that a Hub address of 0 should be used as a placeholder for devices where no Hub is present.



CK family Amplifier Setup Window

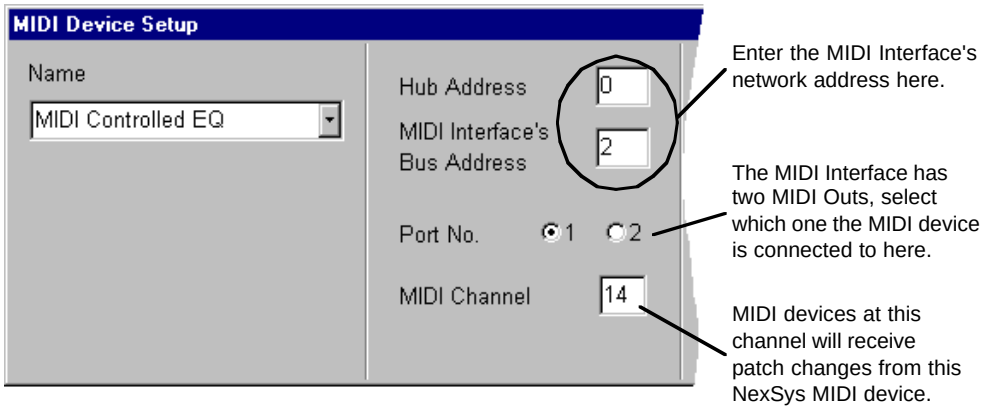


Pro Class Amplifier Setup Window

After setting up a device and selecting OK, you will see the communications alert icon… .

If that device is found by NexSys at the address you selected, the alert will disappear shortly. If the alert remains for several seconds, there is something wrong with the address selected, the device or the network itself.

Duplicate address or out of range address are the most common reasons for communication errors.

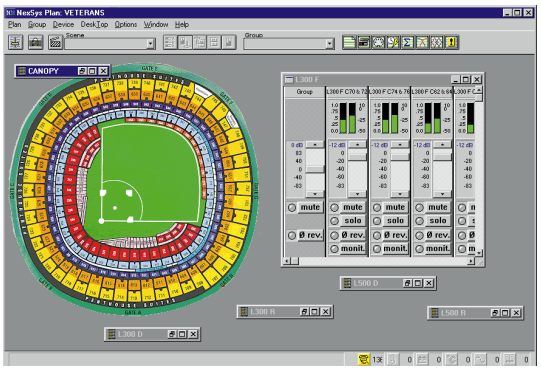

MIDI Device Setup
Name
MIDI Controlled EQ
Hub Address
0
MIDI Interface's Bus Address
2
Port No.
1
2
MIDI Channel
14
Enter the MIDI Interface's network address here.
The MIDI Interface has two MIDI Outs, select which one the MIDI device is connected to here.
MIDI devices at this channel will receive patch changes from this NexSys MIDI device.

MIDI Device Setup Window

6.7 Venue Bitmap Background

If you have a bitmap file (Windows Paintbrush format .BMP) of the system or venue, you can place this as the background of the Plan to serve as a graphical reference. Group icons can be located on top of the bitmap graphic as desired and saved as part of a Scene. Once saved, all icons will always be located in the same position when they are minimized. If you would like your venue to be displayed with a “transparent background,” use cyan as the background color in your bitmap. NexSys will replace cyan with the background color of the window (i.e. the application workspace color.) The red, green and blue (RGB) components of cyan are 0, 255 and 255, respectively.

A venue bitmap can use a lot of memory. For example, a 256 color, 1024x768 pixel bitmap uses almost 1 megabyte of memory. If your system has a limited amount of RAM (such as 8MB or less) and a large number of devices, you may not want to use a venue bitmap. The same holds true for other Windows programs such as screen savers, elaborate desktop themes, etc.



Venue Bitmap Background Example

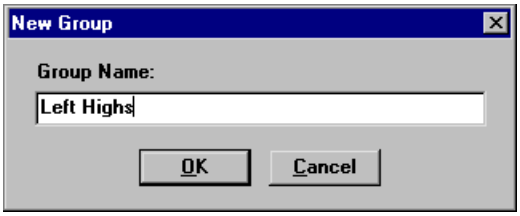
7. Groups

NexSys groups are designed to facilitate the control of amplifiers and other devices. Devices that make sense to control and monitor together can be organized by moving them to the same group.

For example, if we have a two-way stereo system with two amplifiers (left HF, left LF, right HF, right LF), we might want to make groups of Left & Right High Frequency plus Left & Right Low Frequency. That way we can control the amplifier channels together in these logical groups. Other examples of what might be a logical group are Concourse Level, Zone 1, Delay Speakers, etc.

7.1 Creating a group

A group is created by selecting Group | New from the menu. You are then prompted to name the group as shown here. Valid characters for group names include all alphanumerics, spaces, and keyboard symbols.



New Group Dialog Box

There is no limit to the number of groups you can create. However, there is a practical limit beyond which adding groups adds complexity without increasing functionality. It may confuse an operator to control a single device from many different points within the software. [Try starting with a lean plan and gain some operating experience before creating numerous groups.]

It is also possible for a device to be in more than one group. Remember, groups are for access and control convenience and not only physical location.

7.2 Renaming a Group

You can rename a group as simply as you created it. First make sure that the group window is active (i.e. its border is highlighted.) Then, select Group | Setup from the menu. You will be prompted to change the name of the group. Press OK to make the change or Cancel to discard it.

7.3 Deleting a Group

Make sure the group window you want to delete is the active window (by selecting it). Select Group | Delete Group from the menu. A warning will appear to verify that you really want to delete the group.

7.4 Adding Devices to the Group

Most often, you will add devices to your group that already appear in the Plan Inventory. Adding devices in this case is simply a matter of dragging them from the inventory and dropping them into the group. Devices can be moved or copied from one group to another. Note that devices can only be copied from the Plan Inventory, they cannot be moved from it.

Moving a Device

Ensure that the destination group window is open. Select the device from the source group window (or the plan inventory). Press and hold the left mouse button. While moving the cursor over a group window you will see it change to an amplifier icon:

This indicates that the device may be dropped into the group beneath the cursor. In areas where the device cannot be dropped, the cursor will look like this:

Once the cursor is over the desired destination, release the mouse button. The device will appear in the destination group and will be removed from the source group. Remember, if the source group was the Plan Inventory, it will be copied, not moved.

Copying a Device

The technique for copying a device from one group to another is virtually the same as moving a device. The only difference is that before the left mouse button is released, press and hold the CTRL key. This will copy the devices (instead of moving them) to the destination group. Be sure to wait to release the CTRL key until after the left mouse button is released. Once again, with regard to the Plan Inventory, all you can do is copy from it. Holding the CTRL key down to copy devices from the Plan Inventory is unnecessary.

Selecting Multiple Devices

Multiple devices may be moved or copied at one time. Select more than one device in the source group or Plan Inventory by holding down the shift and/or control keys.

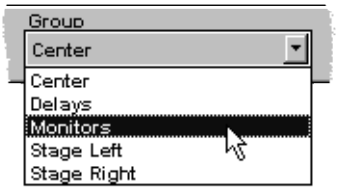
To move or copy consecutive devices, click on the first device with the left mouse button. Then, while holding the Shift key down, select the last device in the block. Once the block is selected, drag it to the destination (as explained above.)

To move or copy non-consecutive devices, click on each device while holding the CTRL key down. When complete, drag the devices to the destination (as explained above.)

You may combine the two techniques above to move or copy both consecutive blocks of devices and non-consecutive ones. Just be sure to hold the CTRL key down during the entire selection process. Hold and release the SHIFT key to establish as many consecutive blocks as needed.

Remember, you can drag and drop (copy) from the plan inventory to a group, but the same drag and drop (without holding the CTRL key) from one group to another will move the item, not copy.

7.5 Quickly Opening a Group



Group Selection Tool

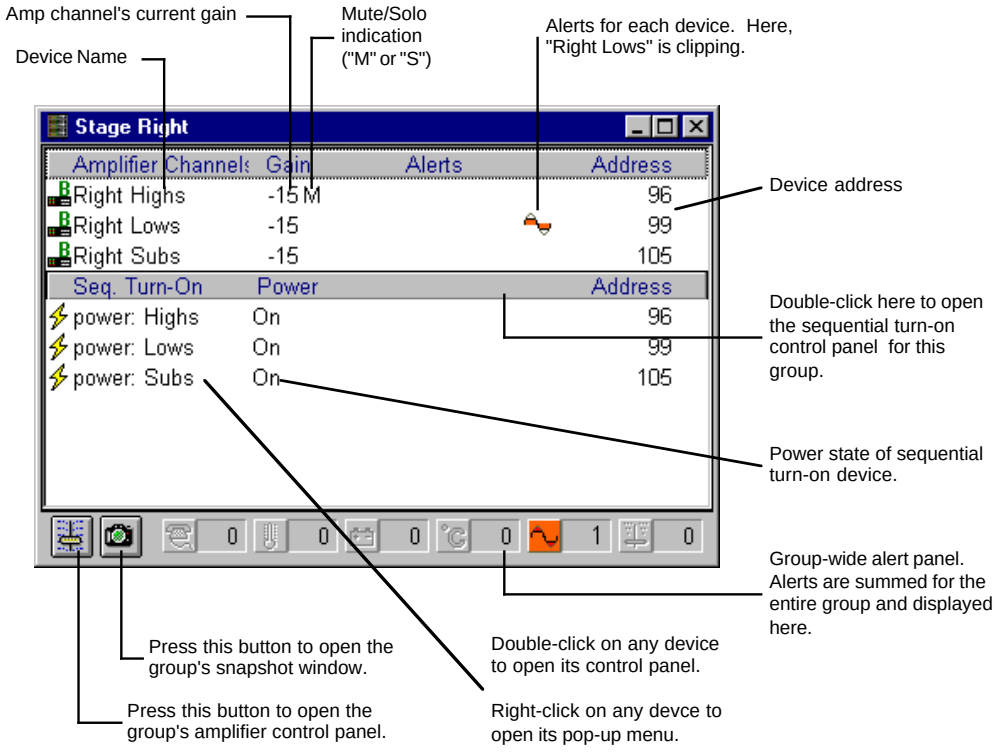
You can quickly open a pre-established group with the group selection tool on the toolbar. Pressing the down arrow presents an alphabetical listing of all of the groups in the plan. Select the group you want to open from the list.

7.6 Group Views

Groups may be viewed in two principal formats: list and console. The list view is the most comprehensive of the views. It shows the channel name, amplifier address, current gain (including mute/solo indicators) and amplifier faults. The other four views are console-like control views where each channel is represented by a vertically oriented module. They range from having all controls and readouts to just the VU and temperature readouts.

Group List View & the Plan Inventory

The most comprehensive view a group window can display is the list view. This is also the only view the Plan Inventory offers. Each device appears as a separate line with an icon representing the type of device, its name, any relevant parameters, any faults, and the address. The following example has a group entitled “Stage Right.” Stage Right is a group containing the B channels of three CKS series amplifiers and their corresponding sequential turn-on devices. The figure below breaks down the components of the list view.


Amp channel's current gain
Device Name
Mute/Solo indication ("M" or "S")
Alerts for each device. Here, "Right Lows" is clipping.
Stage Right
Amplifier Channels
Gain
Alerts
Address
Right Highs -15 M 96
Right Lows -15 99
Right Subs -15 105
Seq. Turn-On
Power
Address
power: Highs On 96
power: Lows On 99
power: Subs On 105
Device address
Double-click here to open the sequential turn-on control panel for this group.
Power state of sequential turn-on device.
Group-wide alert panel. Alerts are summed for the entire group and displayed here.
Press this button to open the group's snapshot window.
Press this button to open the group's amplifier control panel.
Double-click on any device to open its control panel.
Right-click on any devce to open its pop-up menu.

Group List View

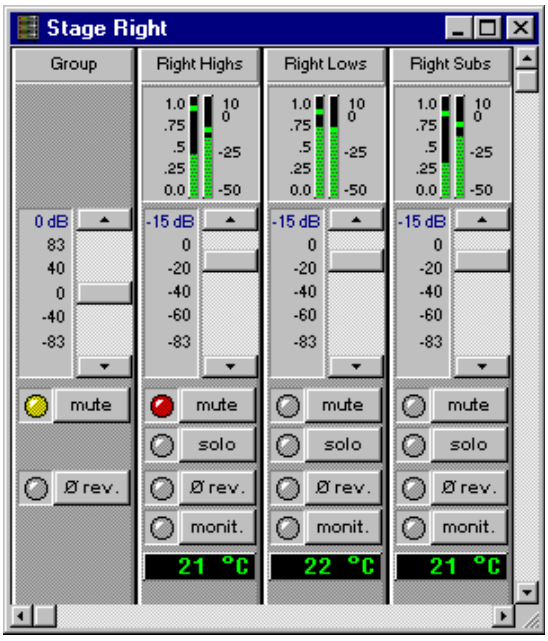
As you can see from the figure, the amplifier channels are grouped together and the sequential turn-on devices are grouped together. In general, list view separates devices by type.

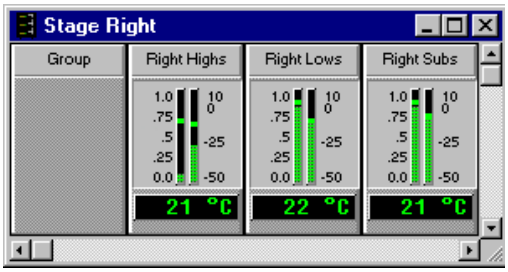
All device types display basic information such as their name, alerts, and address. Some devices, especially amplifiers, present additional information. Here is device-specific information you can expect to see:

- Amplifier channels show their current gain, whether they are muted or soloed, and any of seven different faults.
- Sequential turn-on devices show their switch position.
- MIDI devices show the last patch change sent.
- NC-DSP modules show the current DSP program or algorithm that is running in the module.

Group Console Views

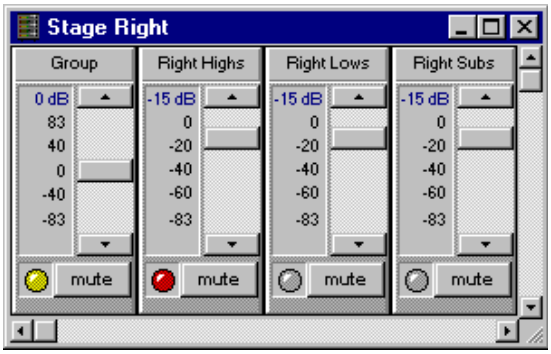
There are four other views in which a group of amplifier channels can be displayed. In the console views, each channel is represented as a vertical module showing input and output VU, temperature meters, faders, mute & solo buttons, phase and audio return (monitor) buttons. Each of these alternative views for the Stage Right example group follow.





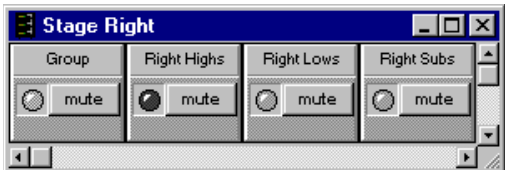
VU meters only

Full View

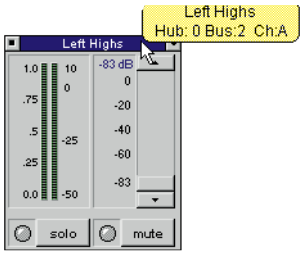


No VU meters

Mute/Solo only



Because of its compact format, it is sometimes difficult to know which amplifier channel a module refers to. Balloon help alleviates this problem. Place and hold the mouse cursor in the title bar of the module and a balloon will appear providing the amplifier's full name, address and channel. When the mouse is moved, the address information is no longer displayed.



Balloon Help example

8. NexSys Faults, Alerts & Events

NexSys is always monitoring the system for faults. Faults or alerts are reported on screen and are sent to the Event Monitor/Log.

8.1 Alert Panels

The bottom of the NexSys window and the bottom of every group window (in list view) contain panels which illuminate alert icons when a fault is present. Next to each alert icon is a count representing the number of devices (or amplifier channels) that are experiencing the fault. For the alert panel at the bottom of the NexSys window, this count is representative of all devices in the plan. For the alert panels at the bottom of group windows, the count represents only those devices contained in the group.

Communications Alert - NexSys is unsuccessful in its attempts to communicate with devices showing this fault.

Thermal Protect Alert - amplifier channels with this alert are in thermal protect.

DC Protect Alert - amplifier channels with this alert are in a DC protect state.

IGM Alert - Instantaneous Gain Modulation circuit has activated for amplifier channel with this fault.

Clip Alert - amplifier channels with this alert have exceeded their clipping threshold.

User Thermal Protect - amplifier channels with this alert have heatsink temperatures above their user-specified threshold.

Alert Panels (above) and icons (below)

While alerts are “summed” on these alert panels, they are individually represented by the following icons in list view.

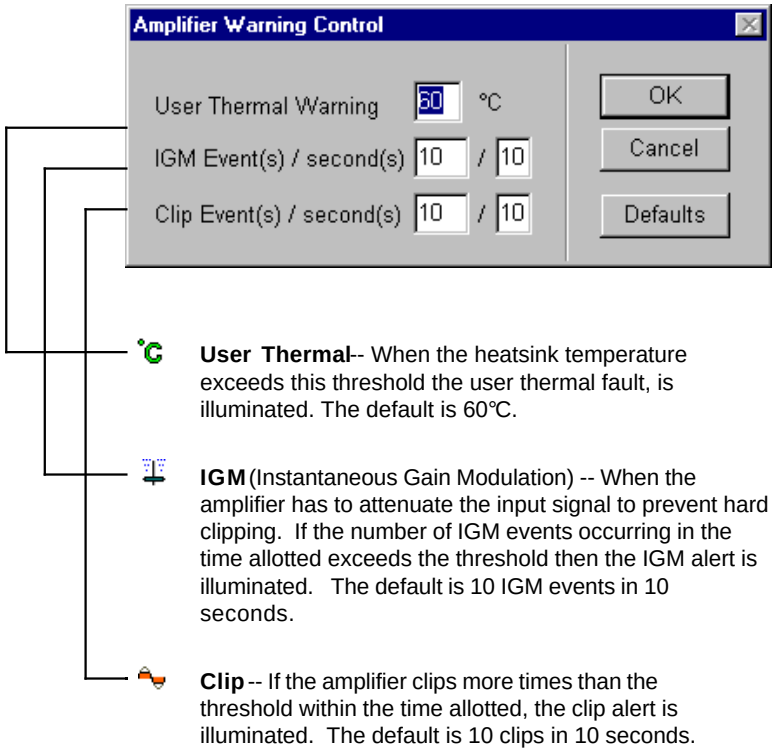
Communications **Thermal Protect** **DC Protect**

User Thermal Warning **Clip Event** **IGM Event**

Power Alert - While not a true fault, this alert shows that the CK family amplifier is off. When this alert appears simultaneously with the Communications alert, it is likely that the amplifier has no mains power supplied. Power alert is exclusive to CK family of amplifiers. It does not appear on Pro class amplifiers. Power loss in that class is typically indicated by a Communications alert.

8.2 Amplifier Warning Thresholds

The warning thresholds window may be accessed by pressing the Warning Thresholds button in the Amplifier Setup (Device | Setup) dialog. User thermal temperature, IGM and clipping are user-definable thresholds.


Amplifier Warning Control
User Thermal Warning
60
°C
IGM Event(s) / second(s)
10
/
10
Clip Event(s) / second(s)
10
/
10
OK
Cancel
Defaults
User Thermal-- When the heatsink temperature exceeds this threshold the user thermal fault, is illuminated. The default is 60°C.
IGM (Instantaneous Gain Modulation) -- When the amplifier has to attenuate the input signal to prevent hard clipping. If the number of IGM events occurring in the time allotted exceeds the threshold then the IGM alert is illuminated. The default is 10 IGM events in 10 seconds.
Clip -- If the amplifier clips more times than the threshold within the time allotted, the clip alert is illuminated. The default is 10 clips in 10 seconds.

Amplifier Warning Control Window

8.3 Event Monitor and the Event Log

The Event Monitor and Event Log keep a record of all NexSys system events with a date and time stamp. These events may include hardware faults, actions initiated by the Event Scheduler, user log on/off and load monitor results. The Event Monitor is a window within NexSys while the Event Log is a text file that may be saved to disk. Windows word processing programs such as Wordpad, Write or Notepad may be used to edit or print the Event Log.

Opening the Event Monitor

Select Options | Event Monitor | Open from the menu to open the event monitor window. The Event Monitor is always recording events to its internal buffer which can hold approximately 600 events in memory. Since it is a memory based buffer, when the program ends or when it overflows the recorded events will be cleared. If you want a permanent record (i.e. saved to disk) of events, then enable the Event Log.

Event Log Setup

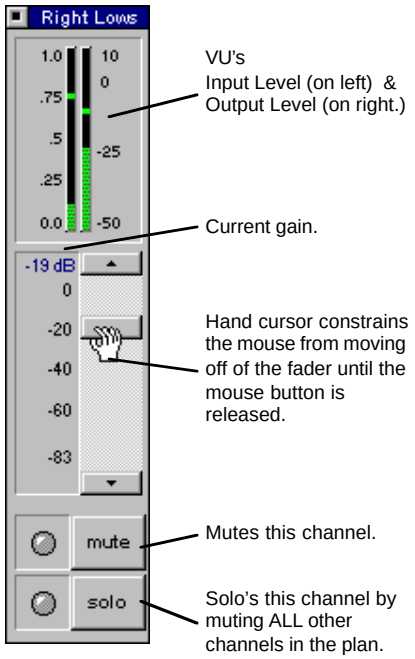
The Event Log, once activated, will create a text file which is an exact record of all events that have taken place since the time the log was activated. You must specify a file name for the Event Log. Do so by selecting Options | Event Monitor | File... from the menu. Once a file is selected, turn on the Event Log by selecting Options | Event Monitor | File On from the menu. Similarly, select Options | Event Monitor | File Off to turn it off.

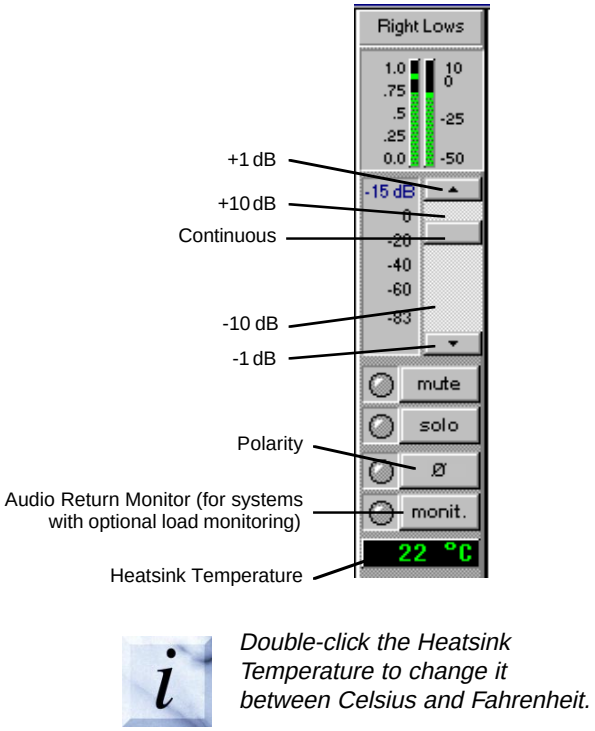
You can print or review the Event Log by opening the event log file from a word processor such as Word, Wordpad or Notepad. You may also use these programs to create additional notes within the body of the file. This is helpful in adding system notes to the event file to document such things as routine system maintenance, addition of devices, transducer replacement, etc.

9. Controlling Amplifiers

9.1 Amplifier Controls

Double clicking on an amplifier channel in list view (in a group or in the Plan Inventory) will open its control panel. Selecting Device | Control from the menu is another way to open a control panel. The figures below show the single amplifier control panel. Variations of this control panel appear in the group console view, the most comprehensive of which is depicted in the figure on the right. Note that the descriptive callouts in the figures below apply to both variants of the control panel.





Single amplifier control panels

Double-click the Heatsink Temperature to change it between Celsius and Fahrenheit.

Amplifier Level Control

Each amplifier channel's attenuator operates within a range from no attenuation (0dB) to full attenuation (-83dB). For convenience, the fader functions in three ways. The fader's "knob" or "thumb" itself may be grabbed and continuously raised up and down. For quick and large steps, clicking in the area above or below the thumb will change the level in 10dB increments. For finer 1dB steps, click the arrows at the top and bottom of the fader.

Pressing the left mouse button on the fader changes the cursor to a hand. This indicates that the cursor cannot be moved off of the fader until the left mouse button is released -- preventing undesirable gain changes from occurring accidentally.

Amplifier Mute Control

Pressing the mute button will fully attenuate the channel. Releasing the mute button will restore the level to that shown by the fader. A channel may have been muted by some other object in NexSys (see Section 9.4 on Control Hierarchy.) If so, pressing the mute button will unmute it. This is because NexSys gives control changes at the amplifier control level the highest priority. Therefore, a channel that has been muted at the amplifier cannot be unmuted by a group or the plan.

Amplifier Solo Control

Soloing a single channel is a useful troubleshooting tool. By pressing the solo button, all other channels in the plan will mute, leaving this channel as the only audible one. As its name implies, only one channel may be soloed at a time. Pressing another's solo will mute the first channel soloed and solo the second.

Although useful for troubleshooting, an inadvertent solo while the system is in use can put the operator in an embarrassing situation. To prevent this situation Solo buttons may be defeated by enabling the Solo Safety (see Section 9.5.) Solo Safety can be enabled or disabled from the menu by selecting Options | Solo Safety. A word of advice; keep your job - engage solo safety during regular operation.

Amplifier Polarity

The polarity control, labeled "Ø " will invert the polarity of the channel.

Audio Return

Audio Return allows system operators at the control position to "listen in" to program material delivered to remote locations. A line level signal of the output of each amplifier channel is made available on Load Monitor-equipped systems. The audio return lines from several amplifiers can be bussed together and routed to a central control position. (Since the signal is line level, a monitor amplifier and speaker will also be required.)

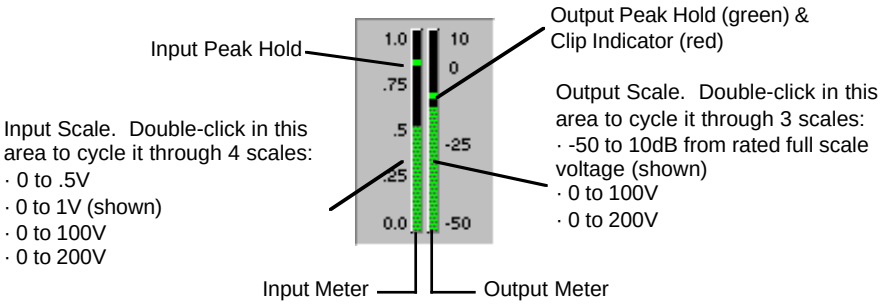
To enable a channel's audio return press its monitor button, labeled "monit." This button can be found in the group console view.

Only one channel within a system may be monitored with audio return at a time. To monitor a different amplifier, simply select the monitor button on that amplifier. The original amplifier monitored will automatically be deselected.

CK family amplifiers have a Phoenix style connector on the NC-SLM Load Monitor module which brings a line level signal out of the amplifier. With Pro class amplifiers, Audio Return is available at a barrier strip on the rear panel of the Load Monitor main frame.

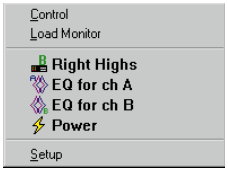
VU Meters

Each amplifier channel's VU display contains two meters: input and output level. Both meter's scales can be changed and both meters show peak hold. The output meter's peak hold indicator turns red when the amplifier clips.



9.2 Related devices

When pointing to a device, right clicking will show a menu of related devices - those devices sharing the same address. In a CKS amplifier, there may be a crossover, a load monitor, and a sequential turn-on control as well as the two amplifier channels. Each is a separate device as far as NexSys is concerned but all appear on the right-button menu. For instance, right-clicking on CH A shows this related device menu:

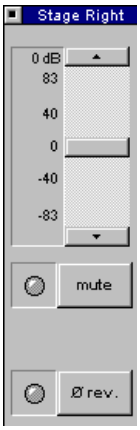


Related Device menu

9.3 Group & Plan Amplifier Control Panel

When in list view, a group level control may be accessed by clicking the group control panel button at the bottom left of the group window. When in console view, the left most module is the group control panel. The Plan amplifier control panel is accessed by the fader button on the left of the toolbar (at the top of the NexSys window.) To open these controls from the menu select Group | Control and/or Plan | Control.

The Plan & group amplifier controls are very similar. In fact, if you think of the Plan itself as the largest group available in NexSys, they are identical. So in the following discussion about how they operate what is said about one applies to the other -- only their scope is different.



Group/Plan Level

The group plan control is pictured here. Notice that the fader ranges from +83dB to -83dB. It is a relative level to the amplifiers in its group. Positive changes here will have the same magnitude increase for every amplifier channel in the group. A negative change here will decrease each amplifier channel level in the group by the same amount. For instance, if the amp is set to -10, and the group level is raised +5, the amp level will increase by 5dB to a level of -5.

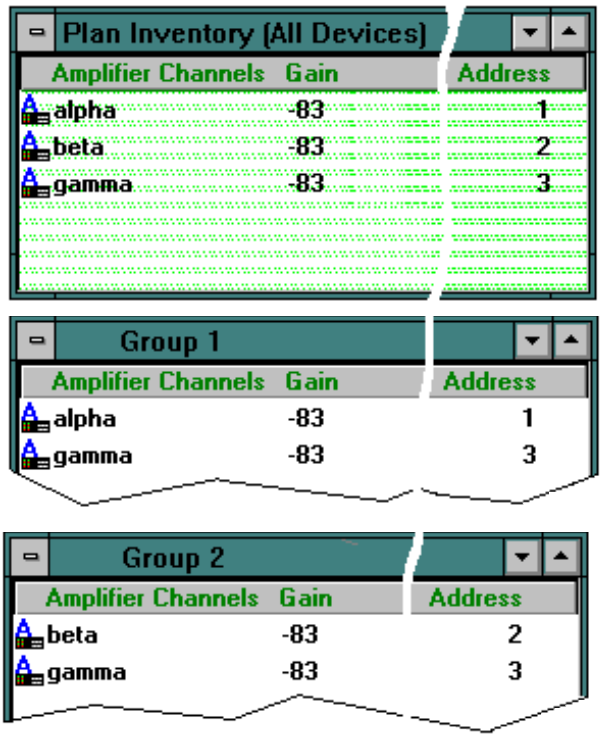
Group and plan level settings are not saved. They are simply relative controls. However, the changes they have upon the amplifiers they control are saved in snapshots and in the plan itself.

Group/Plan Level Control Panel

Group/Plan Mute

Pressing the group mute button will mute all of the amplifier channels in the group. Pressing it again, will unmute all of the channels that the first action muted. Remember, NexSys treats the amplifier channel with the highest priority. So if you have purposefully muted a single amplifier channel within a group, unmuting the group will not override that channel's mute. These different conditions are conveyed by the "LED" indicator next to the group mute button.

A red group mute LED indicates that all channels within that group are muted. A yellow LED indicates that some channels within the group are muted. A gray or dimmed LED indicates that no channel in the group is muted.



9.4 Control Hierarchy

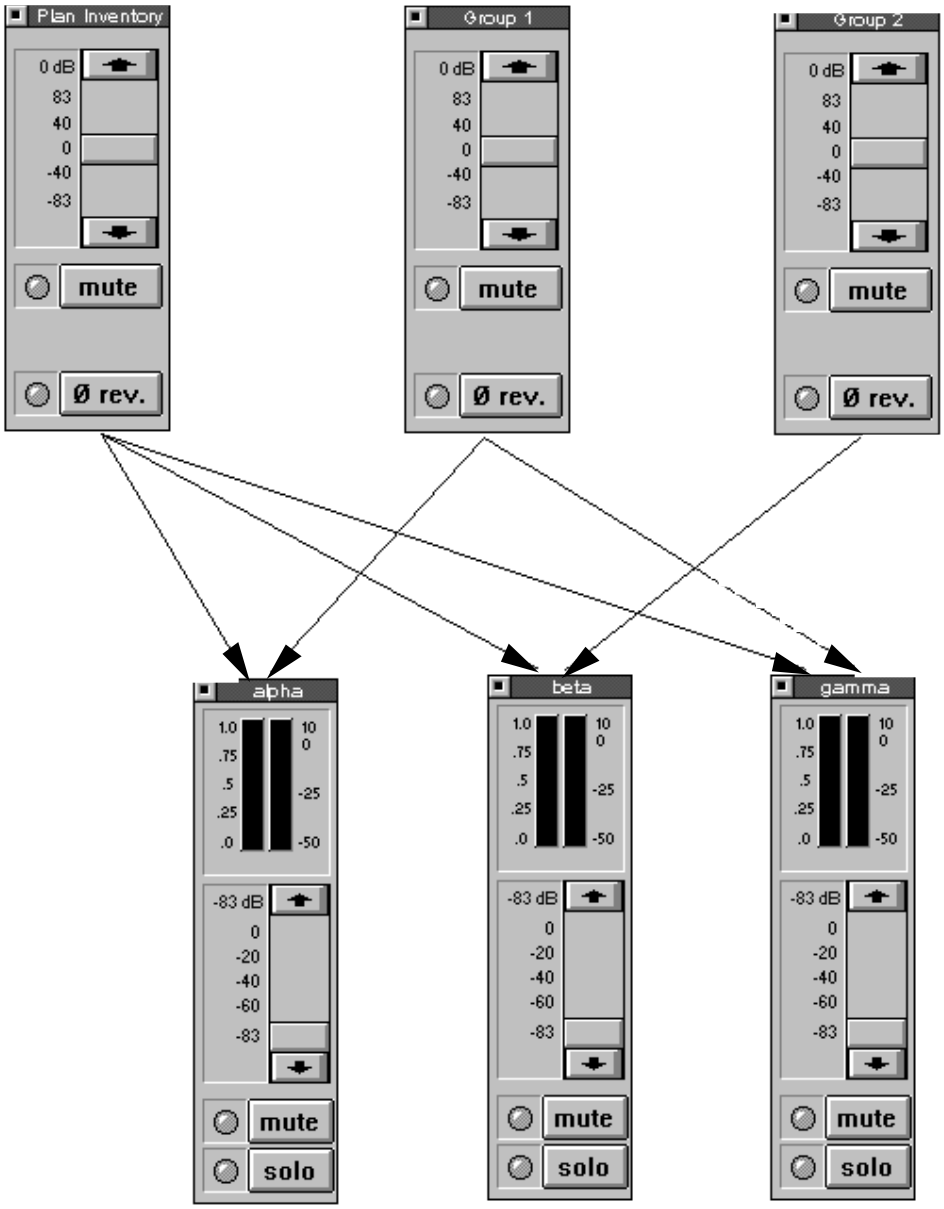
A single amplifier channel may be controlled from different points within NexSys. Double clicking on the channel's name within the inventory window will open its control panel. This control panel is the most direct way to control a channel but there are other ways as well.

In the least complicated scenario, channel "alpha" is part of the Plan inventory and no groups have yet been defined. There are two methods to change alpha's gain (excluding snapshots): 1) directly via its control panel, and 2) relatively, by moving the Plan fader. The relative gain changes, positive or negative, made at the Plan fader will be added to or subtracted from the alpha channel's current gain.

Control Hierarchy Examples

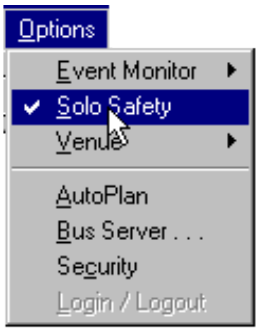
Now assume that alpha is also in a group named “Group 1.” The group fader is another way of changing alpha's gain. It operates in the same manner as the Plan fader. What is important to note is that the Plan fader has no effect on the group fader. They are at the same level of control hierarchy.

The following two diagrams depict even more complicated scenarios (though ones quite likely to occur in a real system). The first diagram shows that there are three channels in the Plan, "alpha," "beta" and "gamma" and two groups, "group 1" and "group 2." Group 1 contains channels alpha and gamma. Group 2 contains beta and gamma. The second diagram shows the controls for each channel as well as the group and Plan faders. The group controls and the Plan control do not affect each other but do affect the channels.



Control Hierarchy Diagram

9.5 Solo Safety



During system testing it is often useful to solo a particular amplifier channel. However, during a performance, soloing one amp channel and muting all others is generally not a good thing to do. Enabling the solo safety prevents amplifiers from accidentally being soloed.

Solo safety can be toggled on and off by selecting Options | Solo Safety from the menu.

Solo Safety Toggle

10. Snapshots

A snapshot is a record of device settings. Settings include levels, mutes, polarity, solo's, MIDI patches, NC-module parameters, etc. Once saved, the settings in a snapshot can be instantly recalled at a later time.

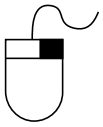
There are two levels of snapshots: one for the entire plan and one for a group .

The snapshot records the control settings of the devices in its domain (either plan or group.) Snapshots are created, deleted, edited, and updated through the snapshot window.

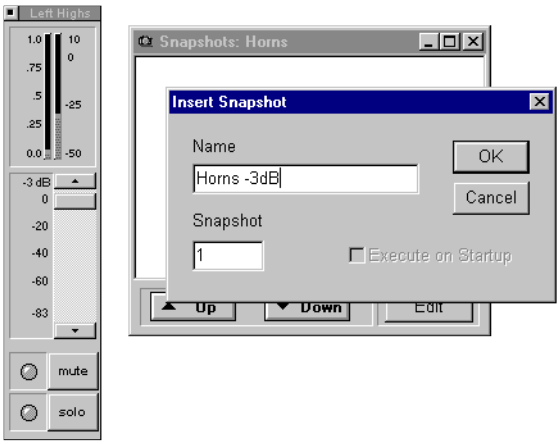
10.1 Inserting a New Snapshot

The first step in creating a snapshot is to make the system changes you want to snapshot.

Once (plan and/or group) settings have been made, access the snapshot window by selecting Plan | Snapshot | Open or Group | Snapshot | Open from the menu. Note that to access a group snapshot, you must have the group window open and active before selecting the pull down menu. Alternatively, just press the Plan Snapshot button on the NexSys toolbar or the Group Snapshot button at the bottom left corner of the group window.



Right clicking on the snapshot window will open a pop-up menu like the one to the left. Pressing the Edit button at the bottom of the snapshot window will do the same thing.



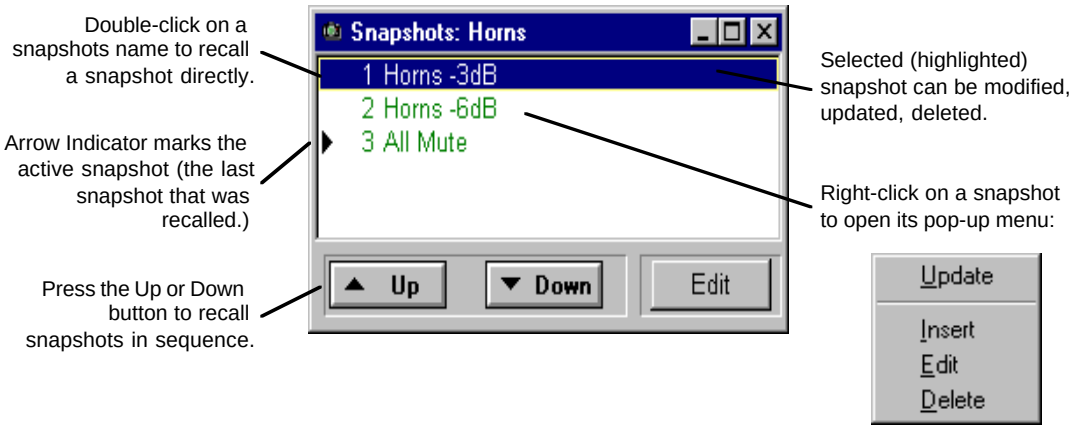
Select Insert from the menu and an Insert Snapshot dialog will appear as shown in the figure. Label the snapshot in the Name box and assign it a sequence number. Click OK. To insert another snapshot, make the changes you want to the devices and then repeat the steps outlined above.

Insert Snapshot Dialog Box

10.2 Recalling a Snapshot

Once saved, snapshots can be recalled in several ways. Double clicking on a snapshot recalls it. This snapshot is considered active and is denoted by a black arrow to the left. The active snapshot is defined as the last one that has been recalled. The Up/Down buttons sequentially recall snapshots. The Down button recalls the next snapshot in the sequence. The Up button recalls the snapshot above the active one. The snapshot list circular, pressing Down at the last snapshot will recall the first. Similarly, pressing Up on the first will recall the last.

The presence of an active snapshot does not guarantee the system is still configured as that snapshot was saved. The operator may have made changes since the snapshot was recalled. In which case, the system would no longer be in the state indicated by that snapshot.


Double-click on a snapshots name to recall a snapshot directly.
Arrow Indicator marks the active snapshot (the last snapshot that was recalled.)
Press the Up or Down button to recall snapshots in sequence.
Snapshots: Horns
1 Horns -3dB
2 Horns -6dB
3 All Mute
Up
Down
Edit
Selected (highlighted) snapshot can be modified, updated, deleted.
Right-click on a snapshot to open its pop-up menu:
Update
Insert
Edit
Delete

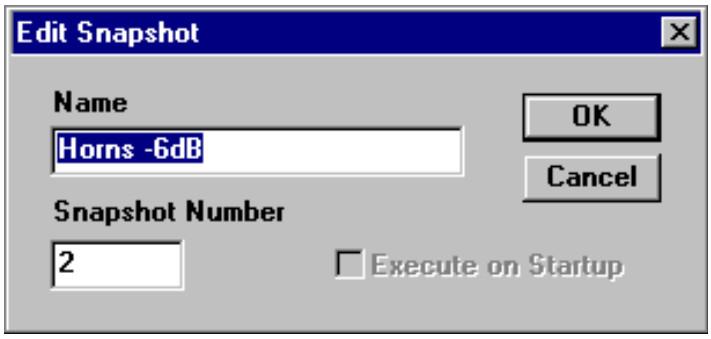
Snapshot Window

10.3 Updating a Snapshot

A snapshot can be changed, or updated, from its original settings. Most times you will make a minor adjustment to a snapshot. These times its best to recall the original first and then make any adjustments necessary. Now, select (single click) the same snapshot and select Update from the pop-up snapshot menu (either right click to open the menu or push the Edit button.) The new settings have now been updated in the snapshot.

10.4 Editing a Snapshot

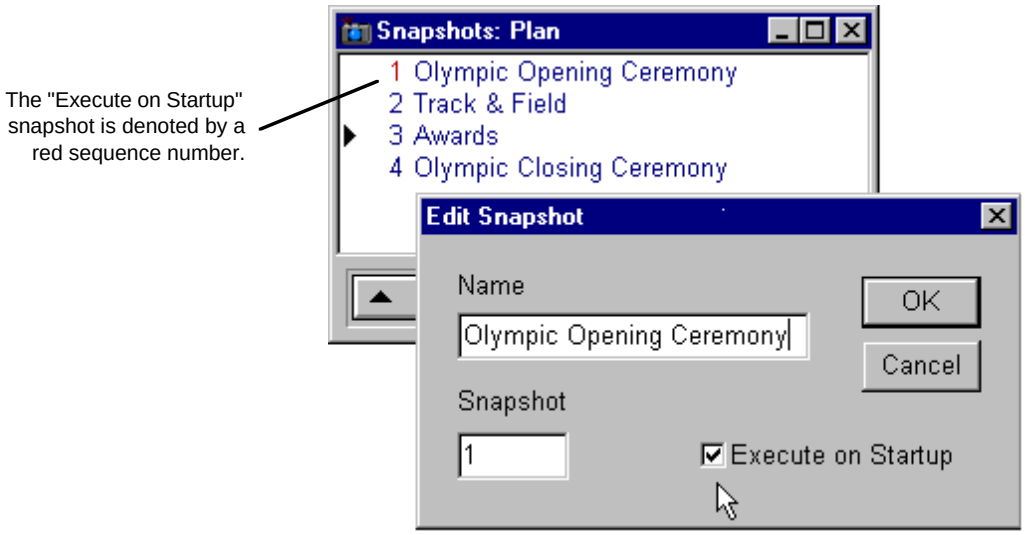
You can change the name or the sequence number of a snapshot by selecting Edit from the pop-up snapshot menu.



Edit Snapshot Window

10.5 Executing a Snapshot on Startup

You may select one Plan snapshot to be recalled when NexSys starts. This snapshot can be considered your “default” configuration. This is an optional feature and you are not required to enable this feature. If you do not, NexSys will load the settings that were in effect when the plan was last saved.



Edit Snapshot Window

10.6 Recalling Snapshots from Outside of NexSys

The Event Scheduler can be used in conjunction with snapshots to automate their recall or to tie them to external control surfaces such as touch panels. Refer to Chapter 13 on the Event Scheduler for more information.

11. Scenes

A scene is a graphical “desk top” arrangement. It is a collection of NexSys windows that you have opened for viewing or control. Once saved, a scene can be quickly recalled by using the Scene Selector on the tool bar. Recalling a scene returns the desktop to the state in which it was saved. Windows will be opened, sized and positioned the way you left them. Scenes, unlike snapshots, have no effect on device settings.

Scenes serve two functions. First, they allow you to tailor the desktop. You may always want certain windows to be open at the same time. For example, you may want to create a scene that includes the control panels for all the zones in a section of the building. By having them available at the click of a mouse, you can quickly access (monitor and adjust) different areas of a large system. If you hadn’t defined a scene, you would have to open and arrange each zone control individually -- a time consuming task.

Second, scenes serve as the basis for security. An administrator can limit access to controls and groups by not placing them in a scene. That is, only the windows that the administrator adds to a scene can be accessed by a restricted user. See Chapter 12 on Security for more information.

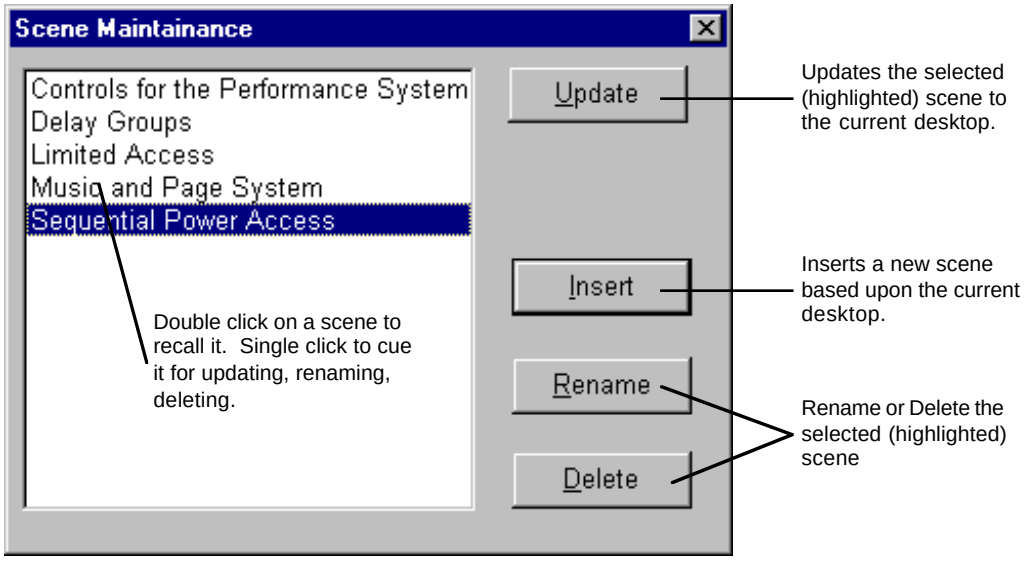
11.1 Scene Maintenance

The Scene Maintenance dialog is the focal point for scene creation, deletion, and modification. Open the Scene Maintenance dialog by pressing the Scene Maintenance button on the toolbar or by selecting DeskTop | Scene from the menu.

Open and arrange any windows you would like to save in a scene. Close any windows you don’t want. Then press Insert to create a new scene or Update to update an existing one to the current desktop.

11.2 Recalling a Scene

To recall a scene, just select it from the Scene Selector on the NexSys toolbar. Scenes are always listed alphabetically.


Scene Maintainance
Controls for the Performance System
Delay Groups
Limited Access
Music and Page System
Sequential Power Access
Update
Insert
Rename
Delete
Double click on a scene to recall it. Single click to cue it for updating, renaming, deleting.
Updates the selected (highlighted) scene to the current desktop.
Inserts a new scene based upon the current desktop.
Rename or Delete the selected (highlighted) scene

Scene Maintenance Window

12. Security

Scenes are the basis for setting up Security. NexSys Security functions by establishing two selection criteria; determining which controls are included in scenes and then limiting access to those scenes via password protection. In addition, security is plan-based so different plans can have different users who, in turn, could have different access levels.

12.1 Access Levels

There are three access levels in NexSys:

- *Administrator* - The administrator has access to all scenes, functions and controls. The administrator is the only level with access to the Security Administrator dialog which is used to add users and set up their access level. The administrator alone can enable or disable security.
- *Full access privileges* enable the user to all areas of the program with the exception of system security. A full user may open any control panel, create snapshots and scenes.
- *Restricted users* are limited to marked or assigned scenes. Restricted users can control only those elements that have been placed in the scene by an administrator. Restricted users cannot open windows.

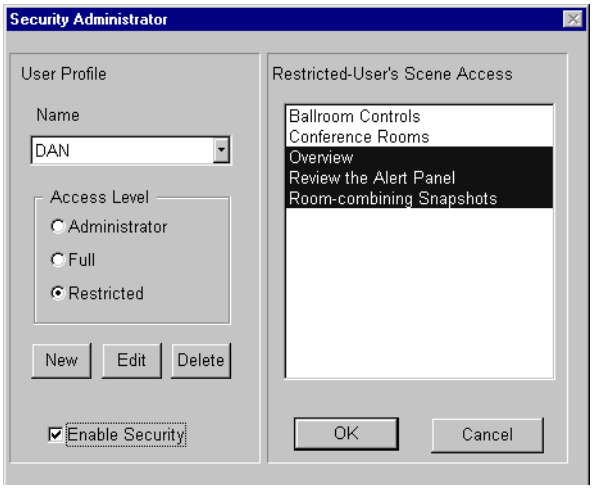
12.2 Security Setup

Security for a plan is configured in the Security Administrator dialog; opened by selecting Options | Security from the menu. Add users as needed, being sure to make yourself an administrator. Press New to add a user. In the User Setup dialog enter the user's name and have the user enter their password. Once added, you can assign the user an access level.

Before implementing security, be sure that you have created the scenes you need. Design your scenes based upon your Restricted Users. Add controls for a more sophisticated user, and less controls (maybe just a snapshot window containing system presets) for a less sophisticated user.

Once you have a set of scenes, go through each Restricted User and select the scenes you want him/her to access.

You may want to create two or more administrators as a failsafe in case one is unavailable or forgets their password. If the administrator(s) lose or forget their passwords, their is no way to recover them. Contact Crest Audio for a temporary password if this scenario occurs.

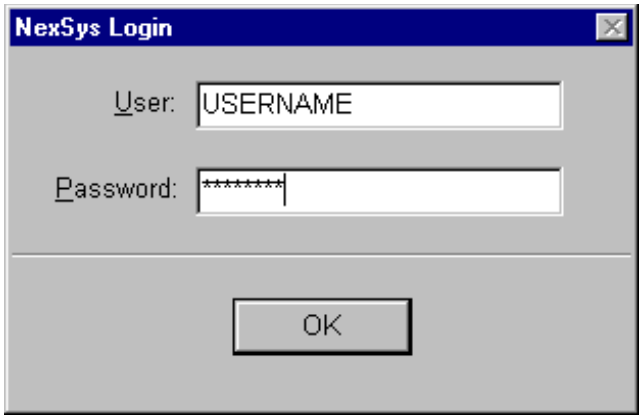


Security Administrator Dialog Window - The highlighted scenes have been selected for 'Dan' to access as a restricted user.

Finally, activate security by selecting the "Enable Security" checkbox. Once enabled, you can only access NexSys by logging in with a valid user name and password. Be sure to save your plan for security to take effect the next time NexSys is started.

12.3 Login / Logout

To login to NexSys or to logout from your current session select Options | Login/Logout from the menu.



NexSys Login Window

13. Event Scheduler

The event scheduler is one of the most powerful and useful tools in the NexSys system. It allows the system operator to automate all functions that can be executed by a user.

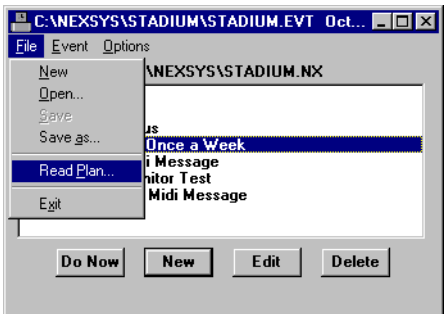
A desire to automate some NexSys function is the first step in utilizing the event scheduler. For example, to perform a weekly Load Monitor impedance sweep of all speaker lines in the system is a common system use criteria. Once you have an idea of what automated function you want the system to do, you can setup the scheduler to perform that function.

13.1 Event Setup and Operations

Select the program manager and execute the Event Scheduler program (EVENT.EXE) by double clicking on the event scheduler icon.

When the Event Scheduler window is open it will display the current date and time at the top, pull down menu items, the current Plan loaded (if any), the scheduler window, and several command buttons at the bottom.

To begin working on the scheduler, you must first ensure that the scheduler Plan loaded is the Plan you wish to work on. Load the Plan desired by selecting File | Read Plan... from the menu, then select the Plan desired. This is the same Plan you have saved in NexSys. It will be an *.nx file.



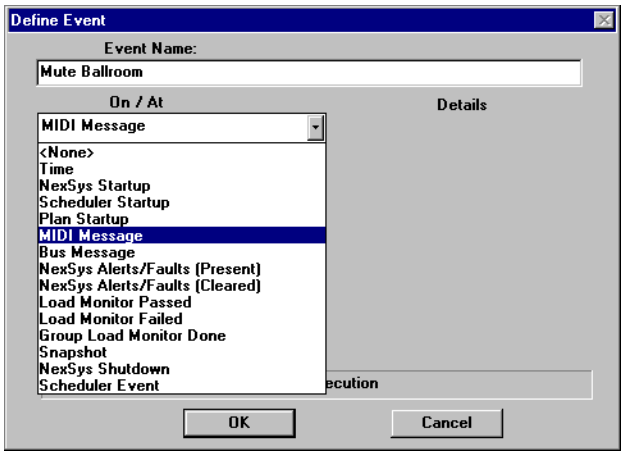
Now let's schedule an event. We need to identify an new event by selecting the New button at the bottom of the scheduler window, or by using the pull down menu commands:

Event | New

This will display a Define Event window.

Define Event Window

There are several fields that need to be selected in order to define a scheduled event including:



Event Name	Name of the event to take place
On/At	Time, date, or other trigger for this event
Do	What action the Event Scheduler is to take
To	The target group or individual Device
Frequency	How often the event is to take place

You can click on the down arrow for each window to see a listing of possible event configuration options.

Define Event Window

Other setup parameters include saving the Event Schedule by selecting:

File | Save As...

from the pull down menus, and then defining the desired file name.

You can also define the event scheduler to always be the top window on the desktop by selecting:

Options | Always On Top

This will place the event monitor window on top no matter which window is active at the time.

In order to ensure that scheduled events take place as desired, the correct date and time must be properly set on the computer, the desired NexSys Plan must be available on the hard disk and the scheduler software must be open and operating. The scheduler will not perform automated functions if the software program is not operating.

13.2 Report Modes

One of the nice features of the Event Scheduler is the ability to report when there is a problem. For example, you could have the system setup so that if a fault message is generated, the event scheduler may execute another program that will automatically dial a modem and send out a message to the pager number of the system operator. Another option would be to send out a MIDI command to a MIDI capable piece of equipment that will issue an audible alert for the system operator. There are almost an infinite number of possibilities that can be setup and executed.

13.3 Example Application

We will take the example of running a Load Monitor impedance test once a week to ensure proper operation of all speaker lines. First load the target Plan with *.nx file extension. Then open a Define Event window by selecting New in the event scheduler window. This will display a new event window.

We must Name the event... in this case we will choose "Weekly Load Monitor." Activate the name window and type in the corresponding name.

Next we need to define when the event will take place. In this case, we will choose Time in the On/At window by clicking on the down arrow and click on Time. This will display another window requiring you to select the day and time for the event to take place. Note the units of entry for each window. Type in the day and time you first wish the event to take place. In our example we will choose the next Sunday morning date and the time of 00:01:00 to begin the Load Monitor sweeps at one minute after midnight.

Next we will define what the event is to Do by selecting the down arrow key and selecting Load Monitor.

Next we need to define what Devices we want to test. From the To window down arrow, select group. This will give us the option of selecting a logical group or the entire Plan. For this example we will choose Plan Inventory to sweep all amplifiers. Note that all groups defined can be accessed by clicking on the down arrow key in the Choose Group window.

Now we must define the Frequency with which we wish our event to take place. In this case, we will select the down arrow that will display all alternatives for this command item and

select Periodically. A Repeat Response Period window will display allowing you to define how often the event will be repeated. In our case, we will use the up arrow key in the days display to define that we want the event to take place every 7 days. Note that after clicking on the OK button, details of each event parameter are displayed to the right of the window.

We can choose to log the event to NexSys event monitor at each execution, or not. Click on the log button at the bottom of the window if you want to log the event. Click the OK button and now our event is defined.

In the Event Scheduler window, we can perform any number of operations on this or any other event by highlighting the event (single click), then choose to Do Now, Edit the event, or Delete the event if it is no longer needed.

Most of the triggers and actions are intuitive and don't require anything more than selection from the options listings. The MIDI message option is an exception. If you want to trigger an event or report a message out of the system via the MIDI interface additional definitions are required.

If you want to receive a MIDI message to trigger an event you must select the following:

Event | New

Give the event a name.

On/At

Enter the address of the MIDI interface as it appears on the NexSys data bus. This is the same address as selected via the DIP switches on the rear of the chassis. Add the HUB address if one is used. At the very bottom of this set up window is a box labeled Bus Message (Hex) It is here that you will enter the hex message to which you want the Event Scheduler to respond. You must enter C0 prior to all inbound Hex messages to indicate to NexSys that this will be treated as a program patch change. After you enter the Hex string and close this window make the appropriate snapshot selection from D0. Complete the remaining selections and select OK.

For outbound messages select Send Midi Message from D0. Enter the bus address of the MIDI interface as required. Note that there is an additional selection for Port. The MIDI interface has two output ports for sending messages; each port supporting 16 MIDI channels. Select the port to which you have made the physical connection to the receiving MIDI Device- (NexSys Midi Interface to receiving MIDI unit). Finally enter your Hex message as you want it sent.

13.4 MIDI HEX Programming

The NexSys MIDI interface is designed for two way communications to the data bus. Outbound program patch changes are issued directly from the NexSys software as referenced above. Provided you have properly configured the NexSys software all you need do is select a target Device, a patch number and execute.

Inbound MIDI patch changes are handled differently from outbound patch changes. All inbound patch changes are received in HEX notation by the MIDI Interface and are passed on to the Event Scheduler. The Event Scheduler associates the received HEX message (Event Scheduler trigger) with a pre-defined action and then executes it. If an inbound message is received and it can not be associated with any action the Event Scheduler will disregard it.

Patch changes are of the format Cn NN. Where Cn is the byte containing the channel number (C0 - CF Hex) and NN is the byte containing the patch number (00 - FF Hex corresponding to patches 1-256.) Any incoming MIDI message that is not a patch change will be disregarded by the MIDI Interface.

14. MIDI Interface

NexSys and the Event Scheduler can interact with MIDI equipment via the optional NexSys MIDI Interface. MIDI (Musical Instrument Digital Interface) equipment can range from signal processing devices and show controllers to mixing consoles.

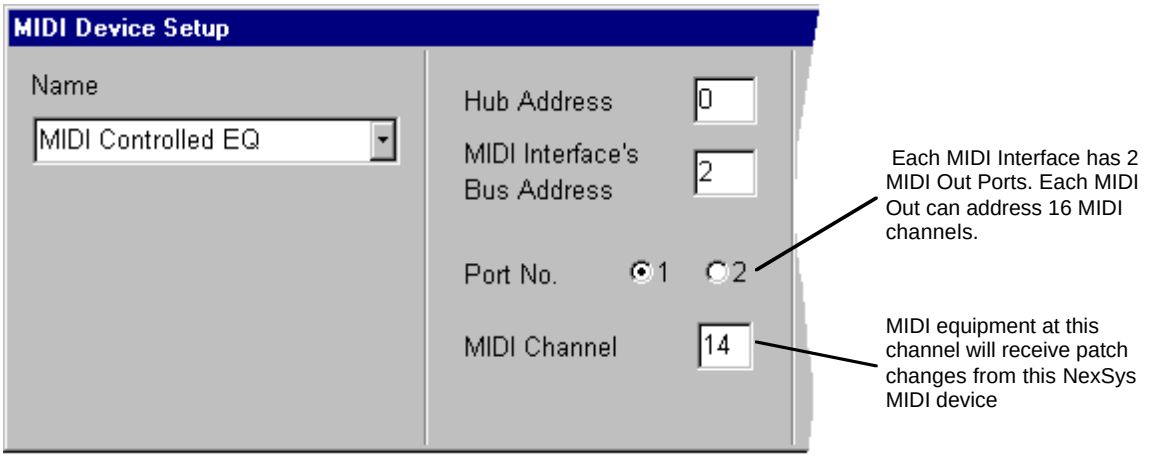
The NexSys MIDI Interface is bi-directional and can send or receive MIDI data. Patches, a common MIDI construct, may be sent directly by creating a MIDI device within NexSys. Patches and more complex MIDI data strings may be received by the Event Scheduler.

The patch changes may be made part of a Snapshot or they may be manually cued and fired. In addition MIDI functions may be automated when programmed in conjunction with the Event Scheduler

Refer to section 13 for advanced use of MIDI commands with the Event Scheduler.

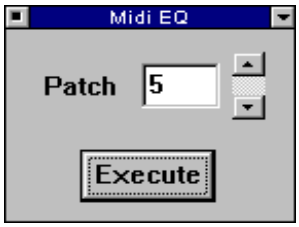
14.1 Creating a MIDI Device within NexSys

MIDI devices must be manually added to NexSys because AutoPlan recognizes a MIDI Interface but cannot recognize third party MIDI equipment attached to it. To add a MIDI device, open the destination group window or the Plan Inventory then select Device | New | MIDI from the menu. Setup the MIDI device with the Setup Dialog that appears below.



MIDI Device Setup Window

14.2 Recalling MIDI Patches



In order to send a MIDI patch you must first open its control window. Double click on the Device in either the Plan Inventory window or the group window containing the MIDI device (represented by a DIN connector.) Select or type the desired patch number and press Execute. *Remember, NexSys MIDI devices are limited to sending patches; they cannot receive them.*

MIDI Patch control window

This same procedure will ready the MIDI device to be saved as part of a snapshot. To do so, execute the patch and then save or update the snapshot. In this way, patches can be sent along with gain changes in a NexSys snapshot.

Third party devices must be configured to act upon a patch change manually - refer to the respective devices owner's manual.

15. Load Monitoring

Optional NexSys Load Monitoring is a powerful diagnostic tool that provides a consistent means to verify performance of the drive lines and speakers in the system. Load Monitoring inserts a test signal into the amplifier and then measures load impedance & current to derive an impedance versus frequency response curve.

Pro class systems have an oscillator within the Supervisors to generate the test signal. The Load Monitor main frame that is positioned post amplifier will measure and report the load impedance at various test frequencies. This data is represented in NexSys as a graphic impedance versus frequency response chart.

CK family amplifiers perform the same tests entirely on-board the amplifier (with the optional NC-SLM module).

Load Monitor tests can run automatically at periodic time intervals using the Event Scheduler. For example, if your system is in a busy transportation station, an impedance sweep of each speaker line can be set to take place every night at 2AM. If the Load Monitor detects an impedance variance beyond the user defined tolerance, an alert will be sent to the Event Log. Each test sweep is saved forming an impedance history for each amplifier channel - driver pairing.

Amplifier output and line impedance changes are most often caused by weakened or failed speaker components or wiring. Whenever there is a major change in the impedance, thorough testing may be necessary to determine where the fault resides within the speaker circuit.

15.1 Load Monitor Setup for CK family Amplifiers

CK family amplifiers incorporate the Load Monitor as an integral part of the amplifier so no additional wiring or software configuration is necessary.

15.2 Load Monitor Setup for Pro Class Amplifiers

The Load Monitoring process is tied to an amplifier channel. For the Pro class additional wiring and software configuration is required. You must connect Supervisor and Load Monitor mainframes to the test amplifier and then enter their configuration into NexSys' amplifier setup window. The data specifies the address of the Load Monitor mainframe and the channel (daughter card) to which the amplifiers output is fed.

First, highlight the test amplifier in either the Plan Inventory or group window. Then click the right mouse button to access its Setup window. The data you are required to enter will include is the HUB address (if one is used) the Load Monitor address and the specific channel to be measured.

15.3 The Reference Curve

Once you have entered the configuration data for addressing you must establish the actual test parameters. Make sure the test amplifier is highlighted and click the right mouse button to access it's Load Monitor window

Device | Load Monitor

A graph will appear which is the template that all Load Monitor test use. Prior to conducting an actual test you must first specify the tests parameters. These include frequency pass

band, number of sample points, number of cycles per sample point, and test signal attenuation. Once this data is entered a test sweep may be conducted by clicking on the sweep button located below the graph. When the reference curve is completed you may elect to save the reference which means that that exact curve will be used as the baseline for all subsequent tests.

Entering Test Parameters

Remember that the test signal is generated at the amplifier, so any limiters, crossovers, etc., at the head end will be out of the signal chain. First, enter the pass band of the test- if you are testing compression drivers with a response range of 800Hz - 10kHz then this same range should be entered. Next, enter the number of sample points. The maximum number of points is 200 and this will produce the most detailed results- but it also takes the longest time to perform and the detail it provides may not be required. Try using 50 sample points first. If the detail of the curve is acceptable then leave that as a default value. If the 50 point curve takes longer than desired then try a smaller number bearing in mind that the resolution of the curve will decrease.

Next set the samples per point parameter. This defines how may samples per discrete frequency will be acquired, averaged and then reported to the host computer. Typically a value of 3 yields consistent results without taking excessive time that additional samples would require. Using larger numbers to acquire more samples will definitely slow the process.

Always enter an attenuation value that is high (30 dB for example) until you determine how the system will respond. The reason is very simple- the test inserts pure tone into the amplifier which may result in some very high SPL as compared to dynamic program material. Always start with a large number for this selection. After running your first curve you must determine if the amount of attenuation is correct for the test. Excessive attenuation may not exercise the drivers (especially LF drivers in reinforcement systems) sufficiently to have the test yield results that would indicate a failure. If the initial attenuation levels are high try additional tests entering a lower attenuation value so that the drivers are fully exercised but are at levels that are not painful to humans and other living things.

Distributed high impedance systems typically do not require the detail of testing or the sound pressure levels that reinforcement systems do. With careful attention and some experimentation on how to best set these parameters, impedance sweeps can take place largely unnoticed. This testing procedure will however, be more effective if conducted at realistic sound levels and duration.

Care must be taken when initiating an impedance sweep. Excessive duration or sound levels could cause speaker damage or personal injury.

If any of the sweep parameters require changing you may either abort the sweep (click on the abort button) or finished the test and select a new reference. You may need to run the reference sweep several times in order to determine the optimum setup parameters. Once you have determined the proper test settings save the reference. This will automatically use the same parameters on all subsequent sweeps.

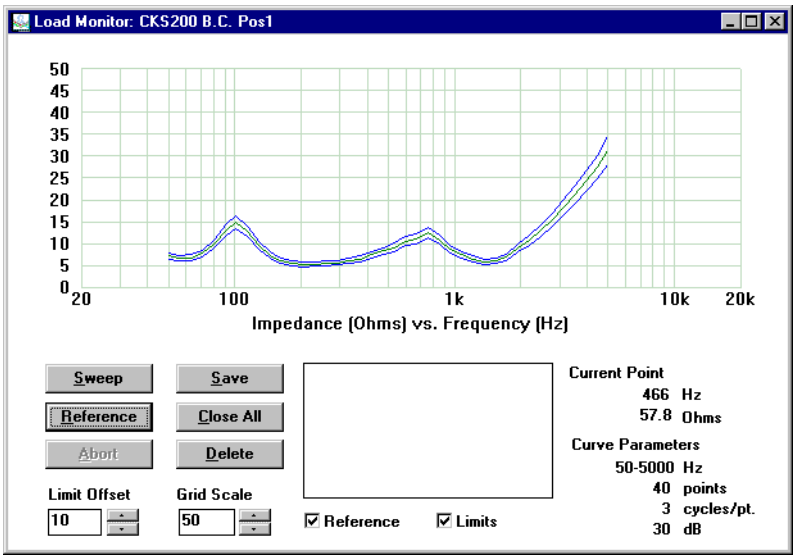
Be sure the reference sweep is done on the system when all speakers and speaker wiring is working properly. This will ensure a proper reference sweep.

Other parameters that can be set include the Grid Scale and Limit Offset. These are adjusted by clicking on the up and down arrows as appropriate.

Once Load Monitoring parameters are setup, these parameters can be copied to other amplifiers by selecting an amplifier from a group or Plan window and dragging it onto the open Load Monitor window which has the desired test values.

Pass/Fail Limits

Load monitor pass/fail limits automatically set to ± 10%. These limits are adjustable by selecting Limit/Offset. Click on the up arrow to loosen tolerances or on the down arrow to tighten. Always leave room for deviation in your reference for normal changes to the load. For example, drivers that are well exercised may have a slightly different response from a new driver out of the box. Both may be within the manufactures acceptable tolerances yet they may not test exactly the same. Test tolerances that are set too tight may indicate failure when in reality there is none. Passive crossover networks, long drive lines, wind loading on a transducer and distributed line transformers (to name a few items) will also effect the test. Bear in mind that a NexSys Load Monitor test measures the entire load that is connected to the amplifier- so any changes that occur which cause the test sweep to indicate failed may be attributable to influences other than transducer breakdown or failure. Load monitoring indicates change- not the cause of change.



Load Monitor Window

Once a good sweep is made, the reference sweep is stored by pressing the Save button.

Curve Limits - Further Manipulation

Further manipulation of the limits of a reference curve is available by using the right mouse button. For example, wider tolerances may be required around the resonant frequency of a passive cabinet while tighter tolerances may be required in the upper frequency range. To custom draw reference limits run a reference curve and when the curve is complete double click the right mouse button on the response graph. The arrow cursor will change to a cross hair cursor and the title bar in the Load Monitor window will indicate "edit upper limit." While in this mode you can "draw" the limit by holding the left mouse button down and dragging a new upper reference. Release the left mouse button when you are finished editing the upper limit. Double click on the right mouse button to edit the lower limit using the same procedure. Double click on the right mouse button a third time and the cross hair cursor will return to the arrow indicating that you are out of the edit mode. Once properly edited save the curve as the reference and it will be your base line for all subsequent tests.

Curve Names

When initiating a new test curve you will be prompted to enter a name for that curve. If you do not enter a name the date and time of the curve will be automatically entered. All saved curves will be listed chronologically in the history box just below the grid.

Double clicking the left mouse button on any of these stored curves will open that test and will display the curve on the grid. Multiple curves may be opened at one time. Opening curves in the order in which they were recorded allows you to determine if they are migrating in a particular direction which may be an indicator of a weakening driver and potential failure.

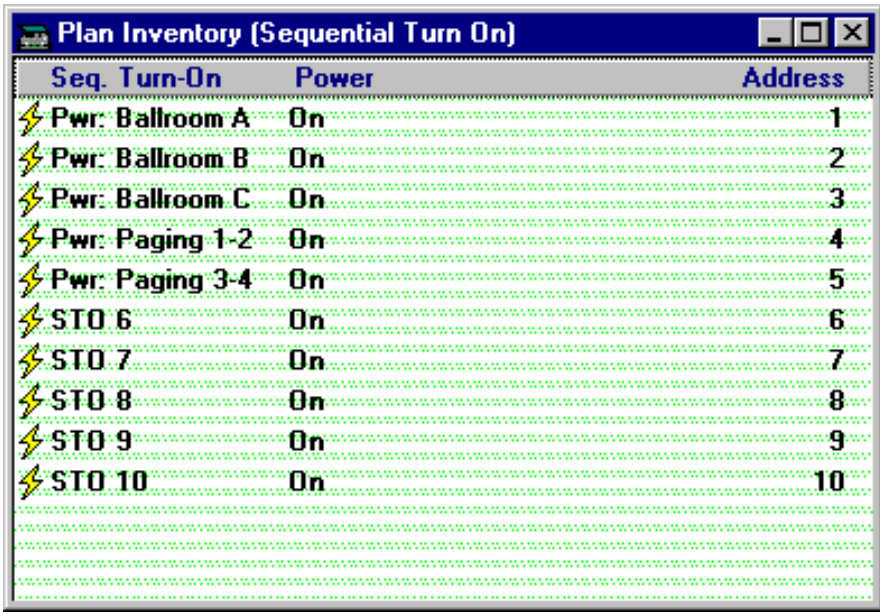
16. CK family Sequential Turn-On/Turn-Off (STO)

Sequential Turn-On/Turn-Off is a standard feature on CK family amplifiers. The STO feature allows the user turn on their amplifiers sequentially with a delay between each one. This protects the electrical system from excessive current draws due to in-rush current demands of the amplifiers.

NexSys Sequential Turn-On/Turn-Off control is accessed in several ways. One method is to open individual controls (per amplifier) from the Plan Inventory window. Another is to select the Sequential Power button on the toolbar which displays all units in the Plan. When in either window a double click on the sequential power Device line will open the window for an individual amplifier. A double click on the sequential power title bar just above the individual listings will open the window controls the entire Plan. The Plan wide sequencing window also allows you to select the turn on/off delay times between all units. CK family amplifiers equipped with the optional AC mains monitor (NC-SAC or NC-SLM module) will see the line voltage, current and wattage consumption in addition to the sequential turn-on/turn-off button. Sequential power control may be added to any of the groups you create.

Sequential power units may be renamed by selecting it with the right mouse button and then choosing the set up menu.

The sequential power control is only available with CK family amplifiers.



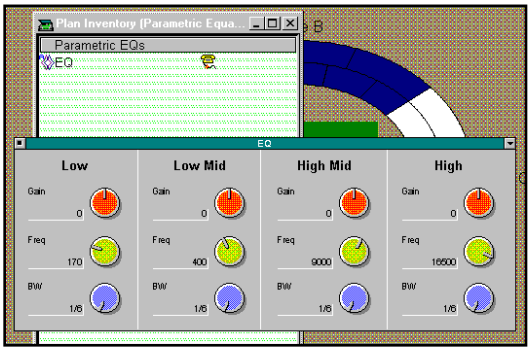
Plan Inventory (Sequential Turn-On) window

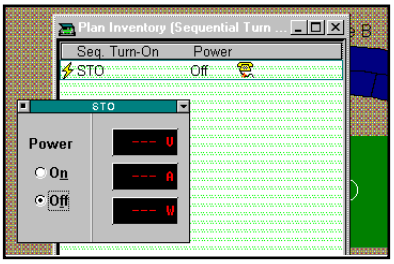
17. CK family Input Modules & Control Panels

Signal processing controls for NC modules are setup and displayed in much the same way as other controls described in this section. Controls are accessed by double clicking on the Device to be controlled in the Plan inventory window or the group window. This will expose the control panel for that particular Device. Controls are set using the mouse with a click-hold and drag technique.

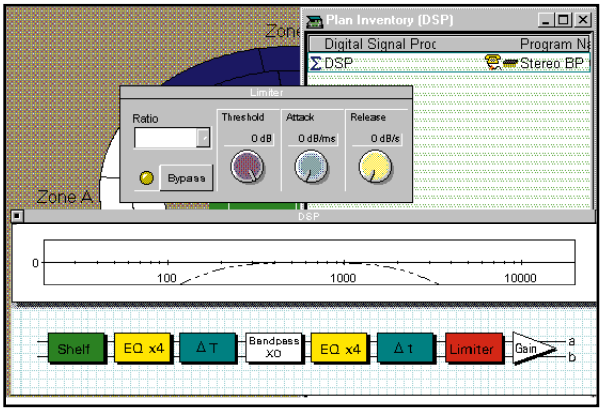
Signal processing controls for NC modules are setup and displayed in much the same way as other controls described in this section. Controls are accessed by double clicking on the Device to be controlled in the Plan inventory window or the group window. This will expose the control panel for that particular Device. Controls are set using the mouse with a click-hold and drag technique.

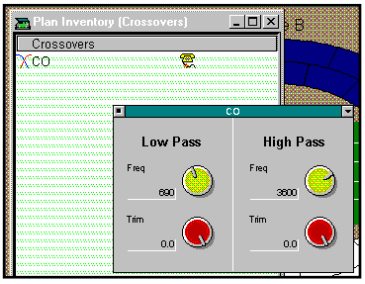
Input module signal processing control functions are covered in detail in the CK family Amplifier manuals.





Above: STO control panel window
Left: EQ control panel window





Above: Crossover control panel window
Left: DSP control panel window

Appendix A - Decimal to Hexadecimal Conversion Table

Dec.	Hex.	Dec.	Hex.	Dec.	Hex.	Dec.	Hex.
0	0	32	20	64	40	96	60
1	1	33	21	65	41	97	61
2	2	34	22	66	42	98	62
3	3	35	23	67	43	99	63
4	4	36	24	68	44	100	64
5	5	37	25	69	45	101	65
6	6	38	26	70	46	102	66
7	7	39	27	71	47	103	67
8	8	40	28	72	48	104	68
9	9	41	29	73	49	105	69
10	A	42	2A	74	4A	106	6A
11	B	43	2B	75	4B	107	6B
12	C	44	2C	76	4C	108	6C
13	D	45	2D	77	4D	109	6D
14	E	46	2E	78	4E	110	6E
15	F	47	2F	79	4F	111	6F
16	10	48	30	80	50	112	70
17	11	49	31	81	51	113	71
18	12	50	32	82	52	114	72
19	13	51	33	83	53	115	73
20	14	52	34	84	54	116	74
21	15	53	35	85	55	117	75
22	16	54	36	86	56	118	76
23	17	55	37	87	57	119	77
24	18	56	38	88	58	120	78
25	19	57	39	89	59	121	79
26	1A	58	3A	90	5A	122	7A
27	1B	59	3B	91	5B	123	7B
28	1C	60	3C	92	5C	124	7C
29	1D	61	3D	93	5D	125	7D
30	1E	62	3E	94	5E	126	7E
31	1F	63	3F	95	5F	127	7F

Appendix B - Menu Reference

(A reference description of all the pull down menu commands

Plan

New	Starts a new Plan
Open...	Opens an existing Plan
Save	Saves the current Plan
Save As...	Saves the current Plan to a specified name
Inventory	
All Devices	Opens the device inventory window and displays all devices
Alerts	Opens the device inventory window and displays all devices showing alerts
Amplifiers	Opens the device inventory window and displays only amplifiers
MIDI	Opens the device inventory window and displays only MIDI devices
DSP	Opens the device inventory window and displays only DSP devices
Crossover	Opens the device inventory window and displays only crossover devices
Parametric Equalizer	Opens the device inventory window and displays only equalizer devices
Sequential Turn On	Opens the device inventory window and displays only sequential turn on
Control	Opens the control window for the Plan
Snapshot	Opens the snapshot window for the Plan
Load Monitor	Initiates multi-device Load Monitoring session for the Plan
Plan Information	Creates and displays a file containing detailed information about the Plan
Event Scheduler	Switches to the Event Scheduler
Exit	Exits the program

Group

New	Creates a new group
Setup	Allows changing the name of the selected group
Delete group	Deletes the selected group
Control	Opens the amplifier control window for the selected group
Snapshot	Opens the snapshot window for the group
Open	Opens the snapshot window for the Plan
Update	Updates the selected snapshot
Insert	Inserts a new snapshot
Edit	Allows editing of the snapshot
Delete	Deletes the current snapshot
Load Monitor	Initiates multi-device Load Monitoring session

Device

New	
Amp	Adds a new amplifier to the Plan
MIDI	Adds a new MIDI device to the Plan
DSP	Adds a new DSP device to the Plan
Crossover	Adds a new Crossover device to the Plan
Parametric Equalizer	Adds a new Parametric EQ device to the Plan
Sequential Turn On	Adds a new Sequential Power device to the Plan
Mixer	Adds a new Mixer device to the Plan
Setup	Allows setup editing of a selected device
Delete	Deletes a selected device
Control	Controls a selected device
Load Monitor	Initiates a Load Monitoring session on a selected amplifier

Desktop

Scene	Displays the scene control window
Views	
Device List	Displays all devices in the group window
All Controls	Displays all device controls in the group window
No Meters	Displays all controls without meters in the group window
Mute and Solo	Displays only mute and solo controls in the group window
VU's Only	Displays only VU meters in the group window

Options

Event Monitor	
Log to file	Initiates writing the event monitor information to a file
Setup …	Selects the file name for the event monitor
View Event Monitor	Displays the event monitor window
Solo Safety	Toggles the solo safety function on and off
Venue	Enables use of a bitmap file for the display background
Load Venue	Selects the bitmap file to use for a background
None	Selects a blank background
AutoPlan	Initiates AutoPlan function to search for all devices in system
Bus Server	Displays bus server control & setup parameter window
Security	Displays the security window
Login / Logout	Displays the login window for gaining access to system control

Window

Tile	Tiles all open windows
Cascade	Cascades all open windows
Arrange Icons	Arranges all icons at the bottom of the screen
Close All	Closes all open windows in the Plan

Help

Contents	Displays the help table of contents
Search for help on …	Searches for help on a keyword
About..	Displays current software release information

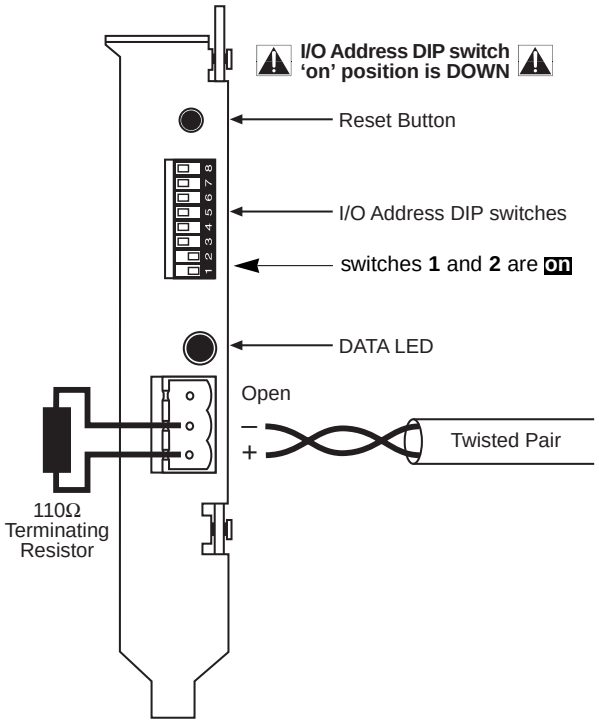
Appendix C - Bus Server Dip Switch Settings

Typical Use	I/O Address	DIP Switch 1	2	3	4	5
game port	200	**on**	**on**	**on**	**on**	off
bus mouse	220	off	**on**	**on**	**on**	off
free	**240**	**on**	off	**on**	**on**	off
LPT2	260	off	off	**on**	**on**	off
free	**280**	**on**	**on**	off	**on**	off
EGA	2A0	off	**on**	off	**on**	off
EGA	2C0	**on**	off	off	**on**	off
Serial Ports 2 & 4	2E0	off	off	off	**on**	off
prototype card	300	**on**	**on**	**on**	off	off
hard disk XT	320	off	**on**	**on**	off	off
free	**340**	**on**	off	**on**	off	off
LPT1	360	off	off	**on**	off	off
SDLC	**380**	**on**	**on**	off	off	off
VGA & SDLC	3A0	off	**on**	off	off	off
VGA & EGA	3C0	**on**	off	off	off	off
Disks & Serial Ports 1 & 3	3E0	off	off	off	off	off

Notes:

- I/O addresses are given in hexadecimal notation.
- I/O addresses in **bold** are default selections within NexSys.
- I/O addresses whose “typical use” are *italicized* should be tried first.
- Ethernet cards are often found at addresses 240, 280, and 300.
- DIP switches 6, 7 and 8 are not used.

Bus Server End View



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VERSION 3.0

Software Manual

NexSys® COMPUTER CONTROLLED AUDIO SYSTEMS

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